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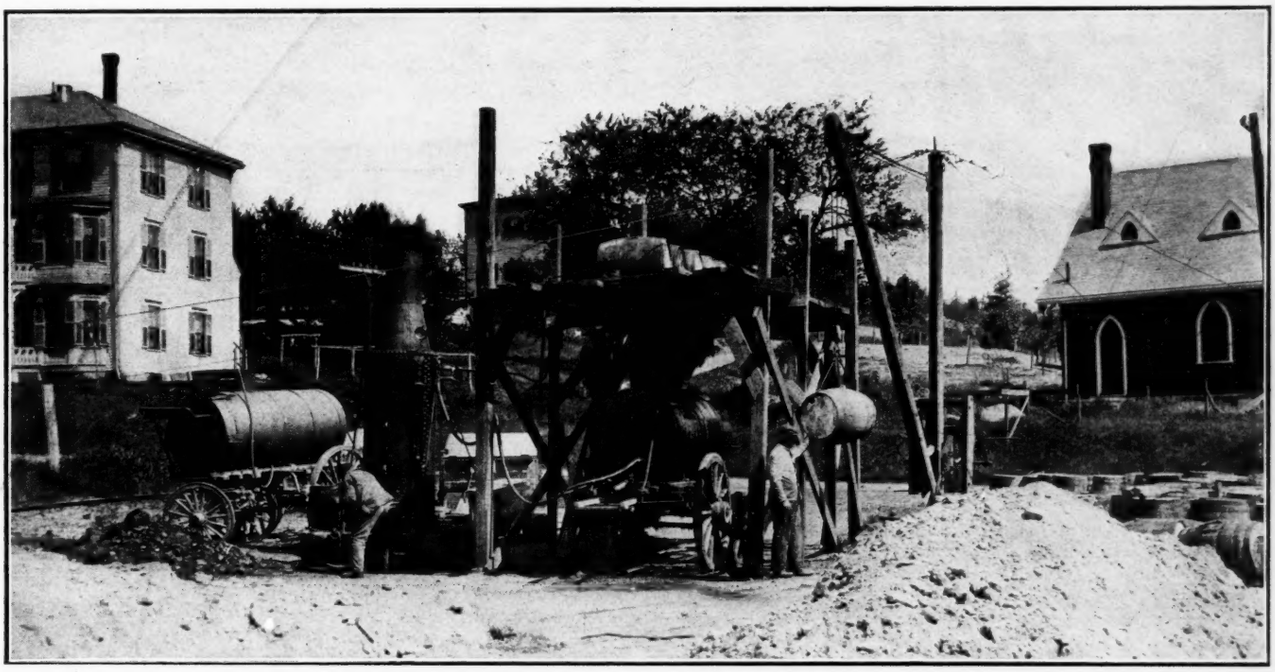


FIG. 1—FILLING TANK WAGON WITH TARVIA, AND HEATING SAME

TAR MACADAM IN FITCHBURG, MASS.

Penetration Method—Quantities of Tar and Stone Used—Cost of Materials and Labor—Cart for Delivering Binding Material and Method of Filling It—In Good Condition After Two Years

By DAVID A. HARTWELL, City Engineer

THE matter of laying a better class of macadam in Fitchburg than the ordinary water-bound macadam was considered and work done by other cities was investigated for some time before any attempt was made to improve this class of road surface. In 1908 three sections of road aggregating a length of one mile and an area of 12,640 square yards in separate sections of the city were built on which Tarvia A was used. This work was done in the same manner as the ordinary water-bound macadam so far as the sizes and thickness of the stone was concerned. The bulk of the stone used was the size called number one, which at times contained some tailings from the crushed screen. This was placed to a depth of about six inches after rolling. When thoroughly compacted with the 15-ton Buffalo Pitts roller, Tarvia A was applied from the tank through a hose terminating in a flat tin nozzle at the rate of about one and one-fourth gallons to the square yard. Immediately after the application of the Tarvia A a small quantity of number two stone was spread and the road rolled with the steam roller. After this rolling a second application of Tarvia A was placed to the amount of about one-half a gallon to the square yard. Then about one-half inch of broken stone about the size of roofing gravel was spread and the road opened for traffic. This surface coating of stone absorbed whatever excess of Tarvia worked to the surface and in about three weeks what had not become a stable part of the road was removed.

The stone was a broken granite of fairly hard texture and, while far from being equal to trap rock, yet taking all things into consideration it has for the last fifteen years proved to be a satisfactory road metal. This has cost in different years from 62 cents to 76 cents a ton of 2,000 pounds at the crusher. The average length of haul on city work is about two miles. In 1909 about six-tenths of a mile with an area of 10,900 square yards was laid on four different streets. On one of these streets the binding material was a road asphalt furnished by the Texas Company and on the other streets it was Tarvia A. Additional work of the same class will be done this season.

No attempt has been made to apply the Tarvia to the stone by the mixing method, but all work in Fitchburg has been done by penetration as above described. The amount of broken

stone used for a square yard is about one-third of a ton, and the amount of binding material about one and three-fourths gallons. The cost of this class of macadam in Fitchburg averages about 75 cents a square yard, of which cost about 20 cents is for Tarvia and the cost of applying it. The work laid in 1908 has passed through two winters and is in such excellent condition that there is no question about continuing this class of work in Fitchburg.

The cart for delivering the binding material on the road was rigged up by Mr. M. J. Hogan, superintendent of streets, and consists of an old street sprinkler with a metal tank. The binding material is delivered on the street at a temperature of about 250°. The tank is piped with a large area of heating surface so that only a reasonable length of time is required to heat a tank full. Connection is made with the steam roller boiler which keeps the material hot during application, and the roller also hauls the cart along the road during the process of application.

All tarvia is received in barrels containing from 48 to 52 gallons each. Where possible the filling of the tank from the barrels is done at a side hill location so that the barrels can

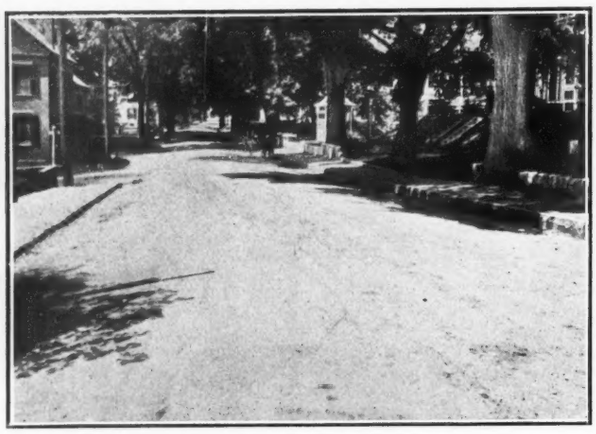


FIG. 2.—CONSTRUCTED IN 1908 WITH TARVIA A
Mottled appearance of road in foreground caused by light color of granite used

be rolled onto the platform, but when this cannot be done they are hoisted to the platform by a small derrick, as shown in the photograph. A V-shaped channel is built, with the sides parallel and about eight inches apart, and the outlet over the cart is eight inches square. The channel is long enough to allow five barrels to be emptied at once, but eight barrels or about 400 gallons are placed in the tank at one filling. A stem jet can be applied to the barrels through a small hole in the head, but this is not done continuously as there is available but one pipe from the boiler for this purpose. The steam is usually applied to the barrels only when nearly empty to

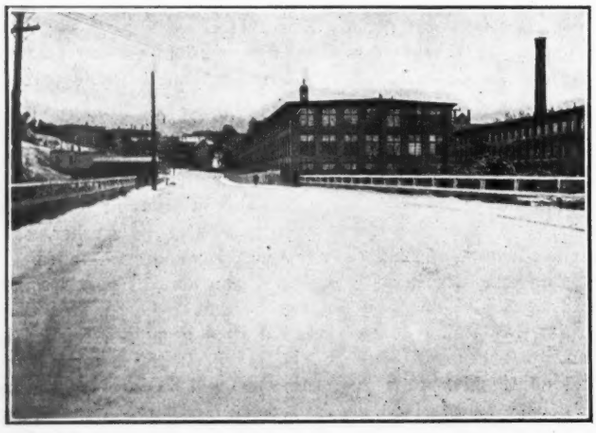


FIG. 3—OLD MACADAM STREET IN MILL SECTION
Treated with Tarvia B in 1908

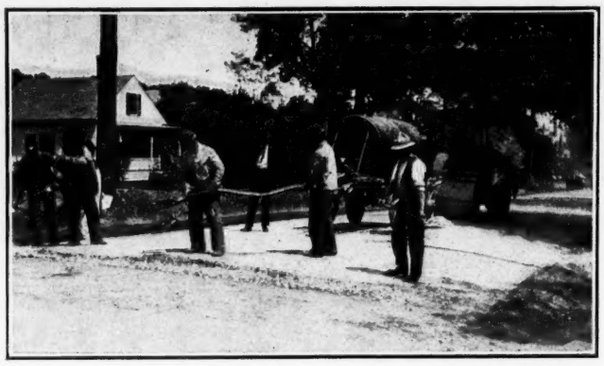


FIG. 4—APPLYING TAR AND STONE TO ROAD

make sure that they are completely emptied. In colder weather the steam is sometimes applied to the barrels in rotation to hurry up the emptying. During the heating in the tank the steam is not applied direct to the tarvia, but through the heating coil. When on the road and connected to the steam roller boiler, the steam for keeping the tarvia hot is applied direct through a small pipe.

In 1908 about 10,000 square yards of old macadam road in a number of streets was treated with Tarvia B at an expense of 7.2 cents a square yard. This work was very successful and highly satisfactory. While such treatment is only designed as a superficial treatment and was applied as a dust preventive, yet after about two full years of service much of it is in excellent condition. The abrasion of the stone from traffic is much less and so the life of the road has been lengthened as well as the nuisance of dust largely abated.

USE OF REFUSE CLINKER

WITH the more widespread use of high temperature refuse destructors in this country the matter of the utilization of the clinker from them becomes of increasing interest. In England, where such destructors have been used a number of years, the subject has been given careful consideration, and "The Surveyor," of London, has briefly stated the present status of the matter in that country, which statement we give below, somewhat condensed.

"At best it (clinker) is only an inferior class of hard earth, of which there is ample available, except that for sewage filtration purposes it breaks up so as to offer a suitable surface. Apart from this, however, it can hardly be said to possess any inherent virtue. . . . It is doubtful whether the advantages of clinker mortar over sand mortar are known and appreciated. It is probable that if the advantages of real clinker mortar were properly put before architects and the building trade, it would be specified to such an extent that not an ounce of clinker would be left in hand. The chemical composition of ground clinker is strikingly like that of trass or puzzuolana; according to Vicat, mortars made with puzzuolana begin to set under the first day, begin to get hard on the third day and are as hard as bricks at the end of twelve months."

The Surveyor, in addition, refers to the use of clinker in the making of concrete, and in one instance for filling in over the extrados of a concrete arch bridge and also making the fill for the approaches to the bridge. At Kensington, paving blocks are manufactured from refuse clinker by a patented process. "So far as can be judged from four years' experience, the results are satisfactory. In dealing with new work of this description, however, one must be prepared to go slowly." Reports from Kensington indicate that the trying out of machinery and methods is about over, and at present 500 blocks per hour are being turned out at a cost of about $23 per thousand, including labor and material, the labor being only about $3.50. The blocks are made 9 by 4½ by 3 inches. "Apparently the main objection to the rapid adoption of the plant by more local authorities is that the product turned out is too high class and expensive."

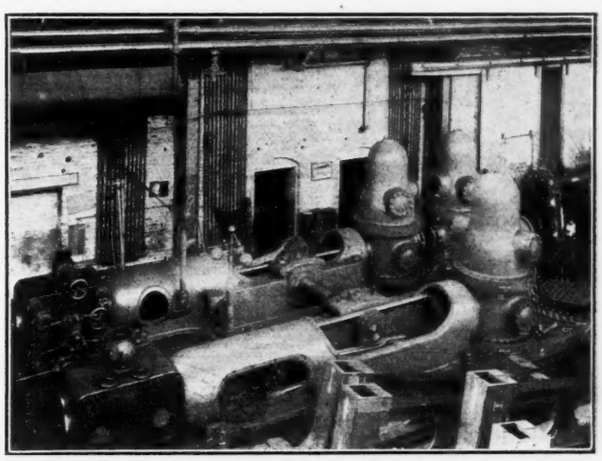
BALTIMORE HIGH-PRESSURE FIRE SYSTEM

General Description of System—Lap-Welded Steel Mains—Special Flexible Joints Designed to Avoid Electrolysis—Pipe Coating Specifications—Concrete Valve Boxes—Hydrostatic Test

Prepared from paper before the Association of Civil Engineers of Cornell University, by Raymond Schlegel

SINCE the great conflagration in 1904, whereby over $100,000,000 worth of property was destroyed, the city of Baltimore has annually appropriated large sums of money for the purpose of perfecting its system of fire protection. About $600,000 is now being spent for the construction of a high-pressure fire line. This line, on completion, will provide an adequate direct pressure sufficient for fire streams when connected to the hydrants and capable of supplying 29,000 gallons of water per minute. The area to be protected practically includes the former burned district which represents the main business section of the city. Mr. Daniel B. Banks, of Baltimore, is the engineer in charge of the work and the Pittsburg Valve & Foundry Co., of Pittsburg, Pa., has the contract for supplying the material.

The pumping station, which is to be entirely fireproof, will be located, as shown on the accompanying map, near the river front. The station will be of sufficient size to provide for five pumping units, four of which will be installed under the present layout, while the other will be reserved for future expansion of the system. Three horizontal Corliss, twin, duplex, non-condensing pumping engines, with the water ends connected directly to the engine frame at opposite ends of the steam cylinder, will each provide 7,000 gallons of water per minute, and one horizontal, duplex, direct-acting, compound, non-condensing pumping engine will provide 1,000 gallons of water per minute. These engines are so designed as to furnish either fresh water from the city supply or salt water from the river, this latter means of supply being used only in case of emergency. The fresh water will be led from a 42-inch city main through a 30-inch cast-iron pipe to the station. As another source of supply to be drawn from in the case of emergency, there is a connection installed for attaching the discharge of the fireboats to the system. The normal continuous pressure on the fire mains to be supplied by the pumps will be 150 pounds, while the emergency pressure will be increased to



ONE OF THREE BALTIMORE ENGINES

300 pounds. (The illustration shows one of the twin duplex engines, complete in the shops of the Allis-Chalmers Company, where they were built, and are now awaiting the completion of the pumping station. They are of the crank and fly-wheel type, with steam cylinders 22 x 22 x 36 inches and pump plungers 13¾ inches. This type of machinery differs from that in New York, where motor-driven centrifugal pumps are used; in Philadelphia, where geared triplex pumps are driven by three-cylinder, vertical gas engines; or in San Francisco,

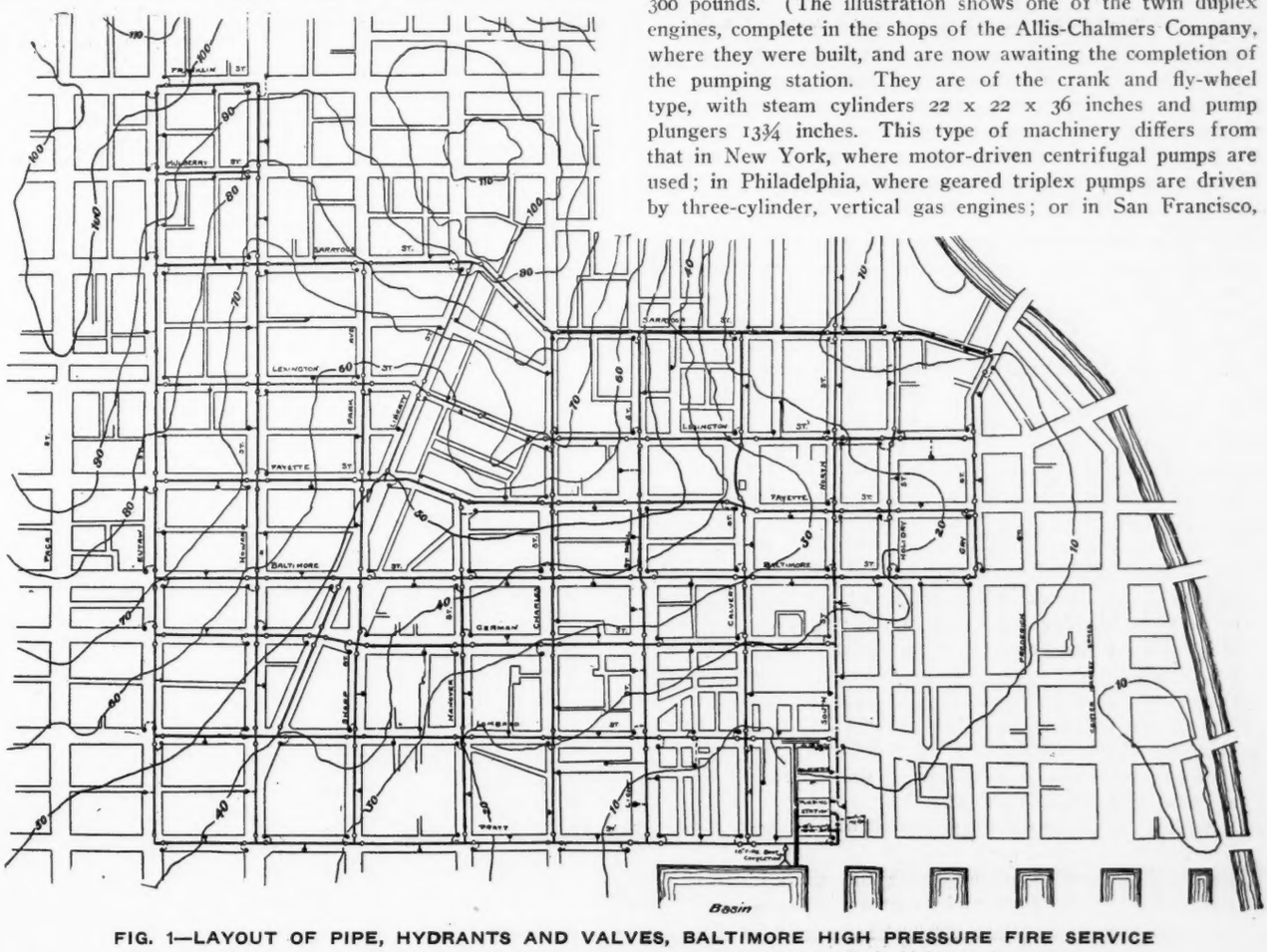


FIG. 1—LAYOUT OF PIPE, HYDRANTS AND VALVES, BALTIMORE HIGH PRESSURE FIRE SERVICE
Fine full lines, 10-in. pipe. Heavy full lines, 16-in. pipe. Dot and dash lines, 24-in. pipe

which adopted steam turbine-driven centrifugal pumps, oil being used for fuel under steam boilers; Baltimore having selected steam engine-driven reciprocating pumps, as described.)

Three inclined water-tube boilers, with a heating surface of about 68,000 sq. ft. each, will supply the necessary steam to the pumping engines. Each boiler will be provided with three automatic stokers so designed that during the normal no-load period, equivalent to banked fires, the stokers will maintain the fires in such a condition that they will be ready for instant response to the forcing requirements. These stokers will automatically control both the supply of air and fuel in proper

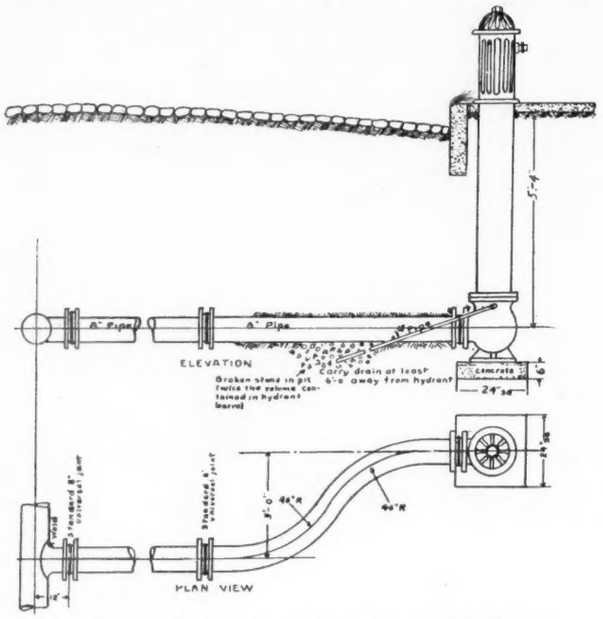


FIG. 2.—HYDRANT CONNECTION. PLAN AND ELEVATION

proportions for complete combustion and will also be under automatic control of the boiler pressure. Hand regulation will be provided in case of sudden demand upon receipt of alarm.

The discharge from the pumping station will be led through a 24-inch steel pipe which will form the main supply of the system. The general layout and distribution of pipes, valves and hydrants is clearly shown on the accompanying map. All the mains are cross-connected at the points of intersection so as to obtain the most perfect circulation possible. With this cross connection and with valves located at the end of every block it is possible to repair a break in any block without affecting the hydrants situated outside of the block in question. All the pipe throughout the entire system, except the two suction pipes, is made of soft open-hearth steel and lap welded; the steel having an ultimate tensile strength of between 50,000 and 55,000 pounds per square inch and an elastic limit of about one-half its ultimate strength. The pipe is being laid in 20-foot lengths, though in one instance a single piece of 10-inch pipe measuring 117 feet in length was laid. The thickness of the various sizes are: Eight-inch, 7/16 inch thick; 10-inch, 7/16 inch thick; 16-inch, O.D., 7/16 inch thick; 24-inch, O.D., ½ inch thick. Wherever possible, pipe bends are used, instead of cast specials, for deflections in the line which are beyond the scope of the universal joint, which will be spoken of later. At the points where the 8-inch hydrant connections leave the mains, the wall of the main pipe is cut out to fit the 8-inch branch pipe which is slipped through and welded to the main pipe, allowing a liberal fillet at the intersection of the two pipes to permit an easy free flow of the water. Fig. 2 shows a typical connection to a fire hydrant.

An interesting feature in connection with the construction of this line is the design adopted for the joints. Considerable trouble has been experienced with the effect of electrolysis upon underground pipes and in many instances the trouble has been directly traced to the pipe joint. By the use of the joint designed for this system provision is made to avoid the effect of electrolysis by making the electrical conductivity of the joint approximately equal to that of the body of the pipe. Fig. 3 shows a section of this joint. The two ends, *A, A,* of the pipes are expanded and accurately machined to the same radius as that of the separating ring *B*. This ring, which is made from the same grade of steel as that of the pipe, is circular and has a cross-section as shown in the figure. The flanges, *C, C,* are made of medium open-hearth steel, having a tensile strength a little greater than that of the steel used for the pipes, being about from 60,000 to 68,000 pounds per square inch. These flanges are accurately machined and the curved surface which is in contact with the pipe is made true, so that when the two adjacent pipes are deflected the contact between the pipe and the flange is fair and without strain. Preparatory to connecting these joints the rings are heated to a temperature sufficient to just melt the coating on the pipes and so secure a metal-to-metal contact in the joint. The ring is held in position by means of a rod screwed into a small tap hole provided at the peak of the ring, and the pipes brought together so as to bear firmly against the ring. The bolts are then put into the flanges and the final tightening of the joint is made by the tightening of these flange bolts. By this arrangement it is possible to secure a tight joint without the use of lead, gasket, cement or any other filler. Another marked advantage is its flexibility. Each joint permits a deflection of about 2 inches for each linear foot of pipe, so that by deflecting the pipe at the joint many obstructions in the ground are easily avoided. The accompanying photograph was taken during a test made at the plant of the Pittsburg Valve & Foundry Co. By the raising of one end of the pipe, as shown, three joints were practically suspended in air and under this arrangement the pipe was subjected to a pressure of 1,000 pounds per square inch. During this test there was absolutely no leakage noted at the joints.

The gate valves are made with double discs and parallel seats. The wedge mechanism is so constructed that it cannot act until the discs have completely covered the seats, but it will then act to force the discs outward against the seats. The valves work vertically, each gate being provided with two bronze tracks or guides to facilitate the opening and closing of the gates. The 16-inch and 24-inch valves are geared, and in addition, the 24-inch valves are provided with a 4-inch bypass. The 24-inch valves located in the power house are to be equipped with hydraulic cylinders for the purpose of opening and closing same. All the wedge mechanism and glands of the valves are made of bronze composition, while the stems

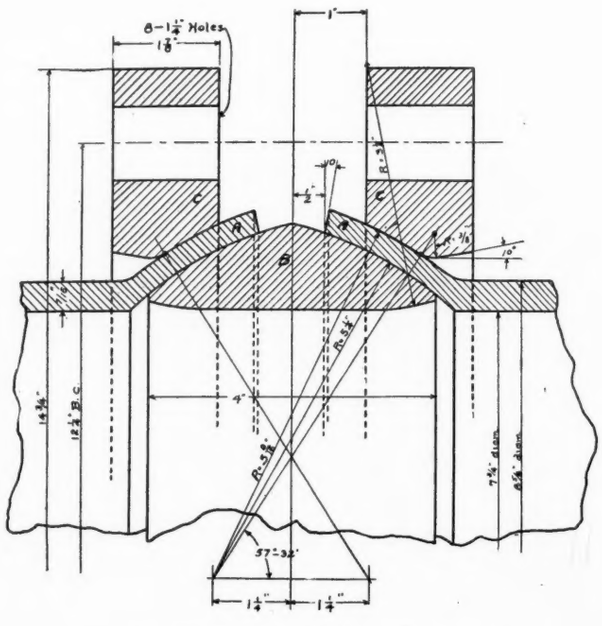


FIG. 3—DETAILS OF 8-INCH PIPE JOINT

are of rolled tobin bronze. At various points in the line relief valves are being installed, the discharge from which is piped to the nearest sewer. These valves, which are 6 inches in diameter, are spring loaded and have nickel seats. Provision is also made for the discharge of any air which may accumulate in the pipes by providing air valves at all the high points in the system.

The hydrants are of the post type provided with a cap which can be readily removed and replaced by a service head containing the necessary outlet nozzles. All the main parts of the valve are of bronze except the valve stem and operating spindle, which are of steel. The hydrant is so designed that the pressure in the main tends to close it, and all the working parts can be removed and replaced without digging up the hydrant or disturbing the pavement. The main valve and the drip valve are so correlated that the one opens as the other closes and it is impossible for both to be open together. The drip valve carries off practically all of the water above the main valve, when the latter is closed, and discharges it into a pit of broken stone.

All the pipes are coated with a composition of mineral rubber asphalt. The specifications governing the characteristics of this coating were as follows:

It shall be of black lustre, tasteless and odorless when at normal temperature.

Its specific gravity shall be between 0.995 and 0.997.

It shall have a ductility of 15 to 18 diam. at 77 deg. F. and a melting or flow point of between 215 deg. and 225 deg. F, and shall be pliable at 0 deg F.

Twenty grams placed in a cylindrical vessel 3 in. in diameter by 1 in. high and set on a perforated asbestos shelf 3 in. from the bottom of a double-walled oven having a thermometer suspended through the top with its bulb 1 in. above this shelf and near the center of the oven; shall show a loss of not more than 00.75 per cent in weight when held at a uniform temperature of 325 deg. F. for 7 hours, nor more than 1.15 per cent when kept at a uniform temperature of 400 deg. F. for 7 hours.

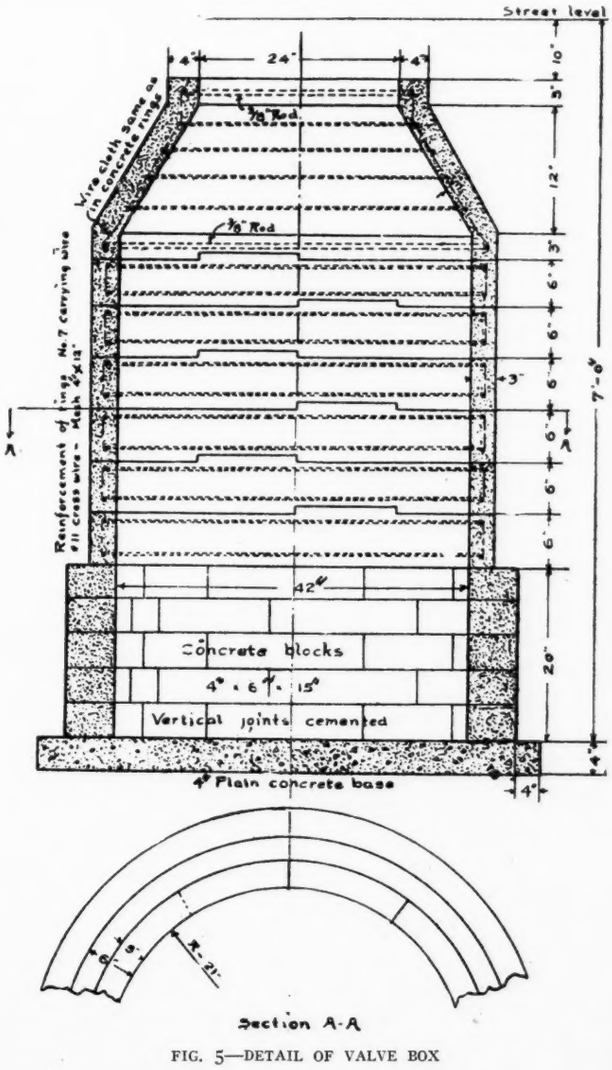


FIG. 5—DETAIL OF VALVE BOX

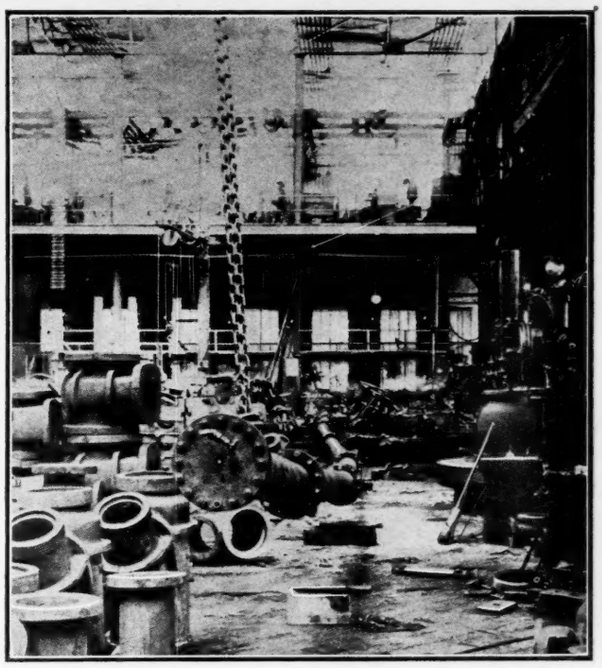


FIG. 4—TESTING SPECIAL PIPE JOINT AT THE SHOP

It shall be solub'e in cold

85° Baume petrolithic ether	64 to 66 %
Carbon tetrachloride	99.4 to 99.6%
Carbon disulphide	99.5 to 99.7%

The above extractions to be taken at air temperature.

It shall have a flash test of not less than 470 deg. F.

It shall have a fire test of not less than 550 deg. F. taken in Cleveland open cup.

It shall have a penetration of between 0.6 and 0.8 mil. with a No. 2 needle with 200-gram weight in 1 min. at 32 deg. F., and 1.2 to 1.4 mil, with No. 2 needle and 100-gram weight in 5 sec. at 77 deg. F., and 2.6 and 2.9 mil. with No. 2 needle in 5 sec. at 115 deg. F.

It shall not contain more than 0.25 per cent of carbones.

It shall not contain more than 0.5 per cent of matter insoluble in carbon disulphide (CS_2).

A cubic centimeter of the pipe coating shall show no action when exposed for one year in either or all of the following solutions: 25 per cent solution sulphuric acid, 25 per cent solution hydrochloric acid, 25 per cent solution potassium cyanide, 25 per cent caustic soda, saturated solution chloride of sodium, saturated solution ammonia.

In applying this coating the pipe was first thoroughly cleaned and uniformly heated to a temperature of about 300° F. and while hot was dipped vertically into the bath, which was maintained at a temperature of from 350° to 400° F. The pipe was held in the bath long enough so that when drawn out slowly and continuously at the rate of from 5 to 10 feet per minute, a thickness of about 1/32 of an inch was evenly coated on the pipe. After being drawn out of the bath and when the draining off of the surplus material had ceased, a hot iron was run around the bottom edge to cut off the drippings. The pipe was then stood on edge until the coating was thoroughly hardened. The valves, hydrants, and specials are painted with an asphalt paint, and the bolts used in the flanges are dipped into a "smear-on" before being inserted.

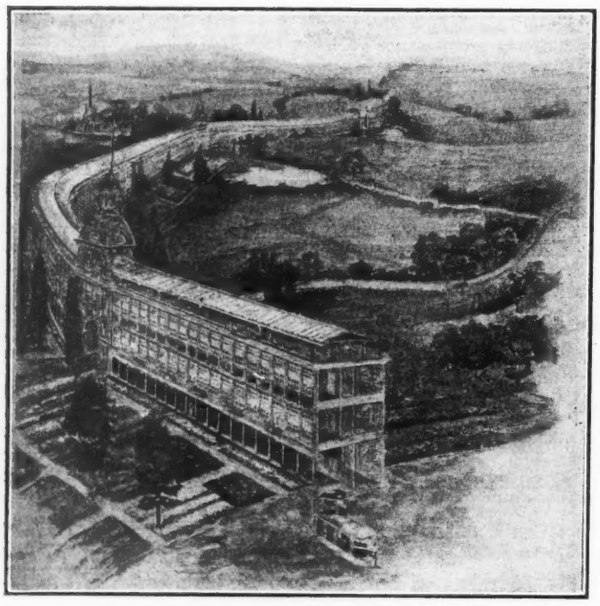
The valve boxes, a section through one of which is shown in Fig. 5, are made entirely of concrete. A plain concrete slab 4 inches thick forms the foundation. The lower section of the box for a height of 20 inches is built of 4-inch x 6-inch x 15-inch concrete blocks having their vertical joints cemented. The upper portion of the box is made up of reinforced concrete rings 42 inches in diameter, 3 inches thick and 6 inches high. These rings are made separately and have, upon their upper bearing face, three projections. spaced 120° apart, 12

inches long, 1 inch high and extending the full width of the ring. On the under surface of the ring are three corresponding recesses into which the projections of the ring below fit, thus forming a kind of lock joint. The conical top is made in one piece and fits upon the top ring. After the base has been laid and the lower blocks built up it only remains to place the rings one upon the other until the proper height is obtained, when the conical top is set to complete the box. The concrete used for these boxes was made of a mixture of 1 part of Portland cement, 2 parts of sand and 4 parts of stone.

After each block of pipe is assembled, with the gate valves connected at either end and before back filling is begun, the line is subjected to a hydrostatic test of 600 pounds per square inch. The water for this test is taken from the existing fire plugs and the pressure is supplied by means of a 4-cylinder gasoline engine.

AN ENDLESS HOUSE

THE most unique proposition in connection with the housing problem which has come to our notice is that proposed by Mr. E. S. Chambless of New York, who has spent some years in developing the idea and has managed to obtain for it some attention and notice. His idea is to build a continuous house from the city or center of industry and occupation, following approximately a contour into and across the country, and, we presume, returning again to the same center. This house might be several miles in length, and later developments might result in lines of houses connecting the two branches of this



A "ROAD TOWN," OR ENDLESS HOUSE

loop or running out as spurs from the same. This continuous house would be three or four stories high and would be divided off by solid and noiseless partition walls into separate dwellings. The roofs of the houses would form a promenade, a part of which would be roofed over and possibly enclosed to provide shelter against sun and inclement weather; so that one could walk from his residence to the city, should he so desire. On the ground level through the center of this chain of houses would run a transportation line in which electricity would probably be the motive power. This would serve to carry the residents of this town (which is called Road Town) to and from the city, and also to transport all freight, express, mail, etc. In a gallery on the ground floor or basement would also be carried all wires and pipes necessary for bringing to each residence gas, water, steam heat, electric light and power, vacuum for cleaning, refrigeration in the summer time, telephone and burglar alarm wires, and possibly other services such as the delivery of milk and whatever future inventiveness may make possible. Thus no carriage roads would be necessary except for pleasure vehicles, but each one would have on either side of his house spacious grounds, which could be used by him for gardens or any other purpose. There would therefore be no dust nuisance, as no highways would pass in front of the house; there would be no noise (except such as might be made by the railroad in the basement or the tramping of feet overhead) and the admission of light and air on two sides of the house would be absolutely unrestricted, although the other two sides would necessarily be windowless.

The chief advantage in this system of construction and mode of living would appear to be the facilities for transportation of all matters from electric current to coal. If the houses should average 40 feet front (as all light and air must enter from front and rear it would not be advisable to have the houses too deep), 132 houses would constitute a mile of buildings and house probably 800 persons. It is estimated that about 100,000 commuters enter New York from New Jersey every day and they and their families and servants probably make up a population of at least 500,000. The houseing of all of these in an endless house would, therefore, require 625 miles of houses, with the accompanying railroad track and pipe and wire system. We do not know whether any exact calculation has been made to compare the economy of this with the present method of existance in New Jersey towns. The novelty of the idea combined with the enormous length of trackage and houseage involved seems startling.

SEPTIC TANK LITIGATION

ANOTHER chapter is being added to the litigation concerning the Cameron septic tank patent. As stated in our issue of October 27, 1909, the Cameron Septic Tank Company claims that its patent does not expire until October 3, 1916, while it is contended by those against whom the company has brought suit that it expired November 8, 1909. Decision upon this point adverse to the company was rendered on April 20 by Judge McPherson, of the Circuit Court of the Eighth Circuit, which includes the States from Minnesota and Iowa south to New Mexico. The company has appealed to the United States Supreme Court, where the case is now pending.

Meantime, interested cities throughout the country have many of them come to a mutual understanding looking to co-operation toward presenting their view of the case to the Supreme Court to the end that it may sustain this ruling of the Circuit Court.

The difference of opinion as to the date of termination of the patent has been created by the treaty drawn up at the International Congress for the Protection of Industrial Property and ratified in 1903 by the United States Senate, and especially by the method of such ratification. This treaty provided that "Patents applied for in the various contracting States by persons admitted to the benefits of the convention under the terms of Articles 2 and 3, shall be independent of the patents obtained for the same invention in other States, whether adhering to the Union or not. This provision shall apply to patents in existence at the time of its being put in force." In ratifying the treaty the Senate omitted that portion which made the treaty apply to patents already in existance. The question, therefore, would appear to be whether this clause so omitted applies in this country. If it does, the Cameron patent does not expire until 1916. If it does not, it expired last November. The same question has been argued in other patent cases. The Circuit Court for the First Circuit held that the clause referred to did not hold in this country; the Circuit Court for the Third Circuit held, in August, 1909, that it does apply, although one of the judges dissented from this decision, and this opinion has also been held by the Circuit Court for the Southern District of New York, and, finally, in the Decision in the Southern District of Iowa, in the case of the Cameron Septic Tank Company versus Knoxville, Ia., which is the one now pending in the Supreme Court.

CREOSOTE FOR WOOD BLOCKS

Plea for Use of Standard Dead Oil of Coal Tar—Rosin Useless—Preservation and Not Caulking of Pores the Essential Result to be Aimed at

By RICHARD LAMB,
M. Am. Soc. C. E., Am. Inst. E. E., Am. Inst. M. E.

AT the convention of city engineers and municipal officers recently held in Chicago, six engineers and four laymen were appointed to draft tentative or temporary specifications for wood block pavement, or rather "principles upon which specifications should be drafted." In the consideration of these principles, as far as I have been able to learn, no representative of a regular wood preserving company was present to state the advantages of adopting the one wood preservative which has stood the test of years, namely, standard dead oil of coal tar or creosote oil. The tentative specifications presented were practically the old creo-resinite specifications modified as to specific gravity from 1.12 to 1.10 for the minimum weight. The supply of this kind of oil in this country (only Otto by-product coke-oven oil has such a specific gravity) is controlled by a combination, and can be obtained only by or through the members of it. Imported oil to meet this requirement would cost twice as much as the American product so controlled.

It was for years maintained by certain manufacturers of wood blocks that what was needed was a material to caulk the pores of the wood so that water could not enter, and that the best or only thing that could accomplish this result was rosin; they at first claiming that at least 50 per cent of the material that was to be injected into the wood should be rosin. They also claimed that the lumber should be 90 per cent heart—a grade of lumber not procurable by any inspection rules now in effect. Wood blocks with 90 per cent of heart would contain already enough rosin to meet the requirements. Later the specification was changed to read "at least 25 per cent rosin," and at present there are few advocates of the use of any rosin at all.

Real creosote runs, as a rule, 1.05 specific gravity. Pitch is 1.175 specific gravity. Therefore, in order to get a creosote of 1.12 specific gravity 57 per cent of pitch and 43 per cent of creosote must be in the same. This means that in the distillation of coal tar the lighter oils up to 1.05 specific gravity are extracted (these are the more valuable attributes) and the remainder, except the hard pitch, is shipped as creosote of 1.12 specific gravity.

Upon the assumption that we need a material to caulk the wood, the same manufacturers claim that the heavier oil or pitch will do this, offering as proof a test of soaking a treated block in water and noting the percentage of gain in weight, which, they claim, should not exceed 3½ per cent. A wood block painted with white lead, or, in fact, with pitch, will meet this condition. But if the block be sawed lengthwise through the middle and soaked, there would be a very material increase in the absorption.

The fact is, engineers have been led to believe that water going into the block is what they should avoid, and not what that water might cause, namely, swelling of the blocks or the rotting of the same. Creosote oil blocks will show a greater absorption of water than the pitch treated blocks, but in actual practice the creosote block does not buckle, if properly treated and laid, to the same extent as does the pitch treated block. I know of no creosote oil blocks having buckled when properly treated.

Instead of needing a heavier oil, we require oil sufficiently light to keep it fluid without excessive heat. The heat necessary to keep oil of 1.12 or 1.10 specific gravity sufficiently thin so that it can be forced through the wood, cooks the wood and breaks down its fiber tissues, and takes the life out of the wood. Persons familiar with kiln-drying lumber for dressing know that if you dry lumber at 280 deg. Fahr. the lumber becomes too brittle to dress. That amount of heat is used to keep the 1.12 or 1.10 specific gravity oil sufficiently liquid to penetrate the wood.

My observation is that the heavy oil does not penetrate the wood so completely as the creosote oil. This thorough saturation is needed to coat the fiber of the wood with oil to make the same waterproof. I am confident that if rosin were really put into the oil its use would soon be abandoned because it could not be made to penetrate the wood. In the report on wood preservation by the special committee of the American Society of Civil Engineers they tell of works erected in 1871 in New Orleans by W. H. Thomas for impregnating wood with rosin oil. This report states that after years of trial it was found that Thomas could not get the rosin oil "sufficiently fluid to fill the sap cells so as to prevent the intrusion of moisture."

So it will be found with this heavy pitch oil. It has not been tried thus far for a longer time than good heart pine blocks would last without treatment. In spite of this fact, Otto Klein, Engineer of the New York City Bureau of Accounts, during the investigation of Mr. Ahearn, ex-President of the Borough of Manhattan, testified that, in his opinion, the paving blocks that had been laid in that city had shown signs of decay and were inferior and would decay in a very short time.

It is this pitch on the surface of the blocks which on a warm day adheres to one's feet and has been tracked into homes, where carpets have been ruined by it. Standard creosote oil treated blocks soon lose all surface stickiness—in fact, scarcely have any at all to start with. It is this same pitch on the surface which causes the blocks to be so slippery. The driver of a fire engine in Bridgeport, Conn., has told me that he drives out of his course in going to a fire to use Fairfield Avenue, which is paved with wood blocks treated with standard creosote oil, as his horses could make better time, and that some of the other streets paved with wood blocks were avoided because coated with slippery oil.

The standard creosoting companies will not use an oil, such as pitch, that has practically no antiseptic properties. I have been asked if tar or pitch was not an antiseptic; if not, why were tar balls used as a germicidal agent? The party did not know that tar balls are not tar, but are naphthalene, which is one of the principal ingredients of creosote oil, and one of its most effective attributes for preventing decay by destroying all fungi or bacteria that would form in the wood. No specification should be adopted that does not provide a reasonable quantity of naphthalene, at least 25 per cent. The United States Government engineers often specify that not less than 40 per cent of naphthalene shall be in the oil. My experience is, however, that when such a percentage is demanded the distillation temperature has to be kept so low as to admit of a larger percentage of phenols or volatile oils than it is advisable to have. Naphthalene does not volatilize below 319 deg. Fahr., which is far above atmospheric temperatures. This chemical is often confused with naphtha, which is very volatile.

The most desirable oil is one of not less than 1.03 specific gravity at 100 deg. Fahr., and not more than 1.07 specific gravity; the latter in order to insure thorough penetration, and with a fractional distillation using 100 grams of creosote, showing percentages of dry oil by weight about as follows:

Up to 150° C (302° F) no distillate
Between 150° C (302° F) and 170° C (338° F) not to exceed 1.5%
Between 170° C (338° F) and 235° C (455° F) not to exceed 35%
Between 235° C (455° F) and 300° C (572° F) not to exceed 35%

The residue should be soft and adhesive. The oil should contain not less than 25 per cent naphthalene and at least 15 per cent anthracene oils. Ninety-five per cent of the creosote oil should be soluble in carbon bisulphide, and equally in absolute alcohol. Using 20 pounds of the above oil per cubic foot of wood blocks will insure the best results, as is evidenced by its having the longest experience of any wood preservatives. This oil can be obtained in quantities by any of the large number of creosote works now operating in the United States, and, therefore, the municipalities can be assured of open competition with consequent great saving in the cost of paving their streets.

CEMENT TESTS FOR LOUISVILLE SEWERS

Methods of Sampling and Testing—Results of Tests for Seventeen Months—Causes of Rejections—Uniformity of Results—Lumpy Cement

DETAILS of cement tests for the new sewerage system of Louisville, Ky., present some interesting figures in regard to the performance of seven specified brands of cement. Early in the course of the construction work, which has now been under way about two years, the Louisville Sewerage Commission established a cement testing laboratory, with a permanent staff. The following results of tests in this laboratory are given in the report of J. B. F. Breed, chief engineer, and Harrison P. Eddy, of Boston, consulting engineer to the commission.

The contracts provided that tests of cement should be made in accordance with the methods recommended by the Committee of the American Society of Civil Engineers on Uniform Tests of Cement, and that all cement should conform to the requirements adopted by the American Society of Civil Engineers, Nov. 14, 1904.

The minimum tensile strength required for Portland cement was fixed as follows:

	Strength Lbs.
Neat Cement	
24 hours in moist air	175
7 days (one day in moist air, six days in water)	500
28 days (one day in moist air, twenty-seven days in water)	600
Mortar—One part cement, three parts sand:	
7 days (one day in moist air, six days in water)	175
28 days (one day in moist air, twenty-seven days in water)	250

Briquettes made for testing tensile strength were broken by a Fairbanks testing machine.

The average results of all tests are given in Table I.

TABLE 1.—Cement Tested, from July 1, 1908, to December 1, 1909

Brands	Carloads tested	Fineness Per Cent Passing Through No.100 sieve	Fineness Per Cent Passing Through No.200 sieve	Tensile Strength Pounds Neat 24 hrs.	Neat 7 days	Neat 28 days	Mortars 1-3 7 days	Mortars 1-3 28 days	Specific gravity	Sulphuric Anhydride (SO_3) %
Alma	24	94.3	82.4	321	728	802	259	321	3.165	1.25
Bedford	58	92.7	78.1	315	718	786	266	355	3.122	1.45
Lehigh	168	93.3	78.2	336	766	836	257	332	3.130	1.43
Old Domin.	5	94.3	78.2	347	769	841	243	364	8.095	1.68
Kosmos	185	93.7	76.8	271	690	862	223	333	3.133	1.42
Speed	284	96.4	77.8	321	747	822	288	358	3.142	1.40
Superior	9	....	....	340	760	880	269	364	....	....

From July 1, 1908, until December 31, 1909, 825 carloads, equivalent to 146,437 barrels of cement, have been sampled and tested.

Samples were taken in accordance with the recommendation of the said committee of the American Society of Civil Engineers. Each lot of cement was tagged at the time samples were taken. The practice of tagging varied according to the character of the work, and the location of storehouses and other conditions. Upon small work where the cement was taken from the storehouse and delivered to the work in small lots, it was found advisable to tag each bag. This was done as the cement was unloaded from the car or the team into the storehouse, at which time samples were taken for the laboratory. After acceptance, cement was taken from the storehouse to the work, as required, and the inspector upon the work, having been informed of the identification number of the lots which had been passed or rejected, knew from the tags upon the bags whether or not the cement had been tested and accepted. Upon the larger work, where the contractor stored his cement in warehouses from which it was used exclusively for but one of his contracts and which were located close to the site of the work, it was necessary to use only sufficient tags to identify each individual lot, as the inspector was able to visit the warehouse at frequent intervals and thus keep under his personal supervision the work of removing the cement from storage.

Seven brands of Portland cement were used upon the work, as follows: Speed, Western Lehigh, Kosmos, Bedford U. S., Alma, Superior and Old Dominion.

Of the whole number of carloads of cement tested, 74, or about 9 per cent, were rejected for the following reasons:

62 carloads for quick setting.
5 carloads for coarse grinding.
6 carloads for retrogression in strength.
1 carload for low specific gravity and excess of sulphuric anhydride.

In each case when cement was indicated by the tests to be of inferior quality, duplicate tests were at once commenced to make sure that no errors had crept into the laboratory work. It was also customary to order retests whenever the results of tests appeared questionable, even though the results might warrant passing the cement. In some instances three or four additional tests were made at the request of the manufacturers, whose representatives were always welcomed to observe the making of the duplicate tests, and to make suggestions as they deemed pertinent.

The large number of rejections, due to quick setting, was apparently due to shipping of cement without due seasoning. While some of the samples gave a satisfactory test when brought to the laboratory, a rapid change went on, so that within a month after the arrival of the shipments they had so changed as to become quick-setting. In some cases samples of cement would set in as short a time as three or four minutes. The change that was going on within this cement is shown very clearly by tests of samples that were taken from different parts of the same bag in a number of instances. For example, a sample taken near the surface, which was more or less exposed to the atmosphere set in six minutes, while another sample taken from the center of the same bag required two hours and thirty-four minutes in which to acquire the initial set. This entire shipment was rejected and a few tests were carried on afterward, one of which, two months later, showed that the cement was still unfit for use on account of the short time in which it acquired its initial set.

In view of the importance of uniform methods and proper conditions in the laboratory, special attention was given to securing uniform results of tests. Whenever an opportunity was afforded by a visit of an expert from the cement factories, during which he made tests, his work was duplicated by the regular laboratory force for the sake of comparing results. Table 2 shows the results of a series of tests upon one brand of cement, the tests being made in duplicate, one by a representative from the mills, the other by an assistant in the laboratory. It will be seen from this table that in the main the results obtained by each tester varied within reasonable limits and that those of the laboratory assistant and the representative of the mills agreed with each other fairly closely.

Table 2.—Results of Duplicate Tensile Strength Mortar Tests (Pounds)

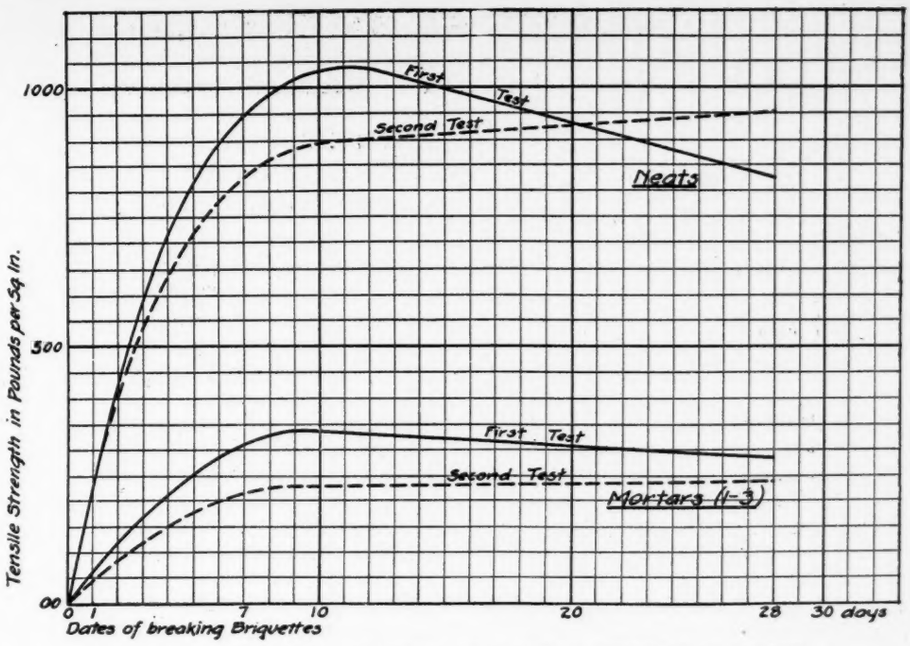
A 7 days' Mortar (1-3) Av.	A Max.	A Min.	Difference between Max. & Min.	B 7 days' Mortar (1-3) Av.	B Max.	B Min.	Difference between Max. & Min.	Difference between Averages.
397	420	375	45	288	307	270	37	109
272	281	263	18	283	293	273	20	11
278	292	255	37	291	297	285	12	13
390	400	380	20	246	260	232	28	144
272	283	261	22	283	312	255	57	11
226	234	218	16	316	345	287	58	90
296	303	290	13	219	283	265	18	77
263	285	251	34	263	272	253	19	0
270	281	260	21	266	270	263	7	4
320	325	280	45	266	270	263	7	54
Average.....27.....							26	51

A—Represents Sewerage Commission Cement Tester.
B—Represents Cement Co.'s Chemist.

There is necessarily a variation in the results of the tests for tensile strength, both of neat cement and mortar, although with care and skill in manipulation the variations may be materially reduced. After making a large number of tests it was decided that for the ordinary routine work of the laboratory the difference in strength between the highest and lowest tests of mortar briquettes, either seven or twenty-eight days old, should no exceed 60 pounds. If this amount was exceeded, a new test was immediately started. In cases of special experiments, or shipments of cement, the quality of which was particularly doubtful, and other cases requiring great accuracy, judgment was based upon tests in which the limit of variation was mate-

rially less than that adopted for the ordinary routine of the laboratory.

Whenever tests of neat cement at the end of seven days showed tensile strength exceeding 800 pounds, a new test was at once started, experience having proved that in most cases, if the manipulation and conditions had been good, cement testing above 800 pounds in seven days will show a retrogression in twenty-eight days. In all cases at least forty briquettes were made up from each carload tested, eight for each period of time in case of both neat and mortar tests, and where the tests were made for the purpose of passing upon the quality of the cement, all results were booked and judgment passed upon the average. In experimental work, eight briquettes were made up for each test of tensile strength, but only those breaking within 5 per cent of the mean were used in the tabulations.



CURVES SHOWING EFFECT OF AGEING UPON TENSILE STRENGTH OF CEMENT
Second Tests were Made from Samples Taken Four Weeks After those for First Tests.

The specifications required that the contractors should hold cement in storage long enough to allow for tests of twenty-eight days' duration. It was found, however, during the winter of 1908 and 1909 that in several of the warehouses the dampness of the atmosphere had penetrated so as to cause the cement to become somewhat lumpy. In some cases this was due largely to the fact that doors and windows had been left open, allowing the damp air to enter freely; but it was also found that in other warehouses in which the cement seemed to be well protected, there was also some deterioration in quality. Permission was given to contractors, therefore, to cut down their storage, during the winter and spring, so that the cement might be used in a shorter time if found satisfactory at the end of the seven-day test. Cements, however, which upon the results of the seven-day tests did not give promise of fulfilling all the requirements, were held for the full twenty-eight-day test.

Samples of the lumps of cement were tested and in some cases were found to have lost nearly all of their original strength. The fine material in the same bags was found to be of good quality and was allowed to be used after the lumps had been screened out. There appeared to be no difference in the effect of the dampness upon the different brands of cement in storage, all of them seeming to suffer to about the same extent.

FORMS FOR WATER WORKS ACCOUNTS

Prescribed by Wisconsin Railroad Commission—For Populations of Over and of Under Ten Thousand—Terms Defined—Form Proposed by Committee of American Water Works Association

A COMMISSION known as the Railroad Commission of Wisconsin has been given powers much broader than its title and is really a general public utility commission. As such it has a certain amount of control over the water works plants of the State, municipal as well as private. It has prescribed a uniform method of accounting for both private and municipal water works, the laws of 1907 providing that every public utility shall keep its accounts and render them to the commission in the manner and form which it may prescribe. The commission has prepared such uniform system or classification, which it has arranged in two classes known as Class A and Class B; the former being for all water works plants in cities of 10,000 and over and Class B for cities of under 10,000 population. The general form is shown in the accompanying table.

The commission has furnished with this a pamphlet of 140 pages describing in detail each of the several items and what it is intended to cover. For instance it defines "operation" as the "use" of the property including labor, materials and supplies, and expenses, but excluding all maintenance items. "Maintenance should be understood to mean 'upkeep,' and should cover all expenditures for current or ordinary repairs, renewals or replacement of property resulting through wear and tear, or through those casualties which are incidental to the nature of the operation and which expenditures are necessary in order to keep up the productive capacity of the plant to its original or equivalent state of efficiency. When, however, a complete replacement of any building or structure, facility or unit of equipment is made necessary regardless of such current expenditures, the uncurrent or extraordinary repairs, renewals or replacements made necessary will be charged to the *depreciation reserve* accumulated for that purpose."

"When through wear and tear in service, casualty, inadequacy, supersession, or obsolescence, any building, structure, facility or unit of equipment originally charged to capital is no longer economically reparable, and in order to keep the productive capacity of the plant up to its original or equivalent state of efficiency it is necessary to make a complete replacement of such building, structure or unit of equipment, the money cost of the original unit replaced and charged to capital should be charged to the *depreciation reserve*, and the access cost of the substituted unit over such original unit shall be charged to the appropriate capital account."

The Committee on Uniform Accounts and Reports of the American Water Works Association, of which Mr. Albert H. Wehr is chairman, presented before the New Orleans convention a scheme which is considerably more elaborate than that of the Wisconsin Commission, the report of the committee covering 326 pages. The general principle of this scheme is

FORMS FOR WATER WORKS ACCOUNTS

Prescribed by Wisconsin Railroad Commission

EXPENSE ACCOUNTS

I—PUMPING

A. STEAM POWER PUMPING

Class B	*Class A*
OPERATION:	OPERATION:
1. Operating Labor.	1a. Superintendence. 1b. Pump Labor. 1c. Purification Labor. 1d. Miscellaneous Labor.
2. Steam.	2. Steam.
3. Steam Purchased.	3. Steam Purchased.
4. Pumping Station Supplies and Expenses.	4a. Lubricants. 4b. Purification Supplies and Expenses. 4c. Miscellaneous Pumping Station Supplies and Expenses.
MAINTENANCE:	MAINTENANCE:
5. Maintenance of Pumping Station Equipment.	5a. Maintenance of Steam Power Pumping Equipment. 5b. Maintenance of Pumping Station Auxiliary Equipment.
6. Maintenance of Source of Supply.	6a. Maintenance of Surface Source of Supply. 6b. Maintenance of Ground Source of Supply.
7. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.	7. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.
8. Maintenance of Purification System.	8a. Maintenance of Purification Equipment. 8b. Maintenance of Purification Buildings, Fixtures and Grounds.
9. Maintenance of Pumping Station Buildings, Fixtures and Grounds.	9. Maintenance of Pumping Station Buildings, Fixtures and Grounds.

B. HYDRAULIC POWER PUMPING

OPERATION:	OPERATION:
10. Operating Labor.	10a. Superintendence. 10b. Hydraulic Labor. 10c. Pump Labor. 10d. Purification Labor. 10e. Miscellaneous Labor.
11. Hydraulic Power Purchased.	11. Hydraulic Power Purchased.
12. Pumping Station Supplies and Expenses.	12a. Lubricants. 12b. Purification Supplies and Expenses. 12c. Miscellaneous Pumping Station Supplies and Expenses.
MAINTENANCE:	MAINTENANCE:
13. Maintenance of Hydraulic Power Works.	13a. Maintenance of Dams, Canals and Flumes. 13b. Maintenance of Turbines and Water Wheels.
14. Maintenance of Pumping Station Equipment.	14a. Maintenance of Hydraulic Power Pumping Equipment. 14b. Maintenance of Pumping Station Auxiliary Equipment.
15. Maintenance of Source of Supply.	15a. Maintenance of Surface Source of Supply. 15b. Maintenance of Ground Source of Supply.
16. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.	16. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.
17. Maintenance of Purification System.	17a. Maintenance of Purification Equipment. 17b. Maintenance of Purification Buildings, Fixtures and Grounds.
18. Maintenance of Pumping Station Buildings, Fixtures and Grounds.	18. Maintenance of Pumping Station Buildings, Fixtures and Grounds.

C. ELECTRIC POWER PUMPING

OPERATION:	OPERATION:
19. Operating Labor.	19a. Superintendence. 19b. Pump Labor. 19c. Purification Labor. 19d. Miscellaneous Labor.
20. Electric Current Purchased.	20. Electric Current Purchased.
21. Pumping Station Supplies and Expenses.	21a. Lubricants. 21b. Purification Supplies and Expenses. 21c. Miscellaneous Pumping Station Supplies and Expenses.
MAINTENANCE:	MAINTENANCE:
22. Maintenance of Pumping Station Equipment.	22a. Maintenance of Electric Power Pumping Equipment. 22b. Maintenance of Pumping Station Auxiliary Equipment.
23. Maintenance of Source of Supply.	23a. Maintenance of Surface Source of Supply. 23b. Maintenance of Ground Source of Supply
24. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.	24. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.
25. Maintenance of Purification System.	25a. Maintenance of Purification Equipment. 25b. Maintenance of Purification Buildings, Fixtures and Grounds.
26. Maintenance of Pumping Station Buildings, Fixtures and Grounds.	26. Maintenance of Pumping Station Buildings, Fixtures and Grounds.

D. GAS POWER PUMPING

OPERATION:	OPERATION:
27. Operating Labor.	27a. Superintendence. 27b. Pump Labor. 27c. Purification Labor. 27d. Miscellaneous Labor.
28. Power Gas Produced.	28. Power Gas Produced.
29. Power Gas Purchased.	29 Power Gas Purchased.
30. Pumping Station Supplies and Expenses.	30a. Water for Cooling Engines. 30b. Lubricants. 30c. Purification Supplies and Expenses. 30d. Miscellaneous Pumping Station Supplies and Expenses.
MAINTENANCE:	MAINTENANCE:
31. Maintenance of Pumping Station Equipment.	31a. Maintenance of Gas Power Pumping Equipment. 31b. Maintenance of Pumping Station Auxiliary Equipment.
32. Maintenance of Source of Supply.	32a. Maintenance of Surface Source of Supply. 32b. Maintenance of Ground Source of Supply.
33. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.	33. Maintenance of Collecting Aqueducts, Intakes and Supply Mains.
34. Maintenance of Purification System.	34a. Maintenance of Purification Equipment. 34b. Maintenance of Purification Buildings, Fixtures and Grounds.
35. Maintenance of Pumping Station Buildings, Fixtures and Grounds.	35. Maintenance of Pumping Station Buildings, Fixtures and Grounds.

E. WATER PURCHASED

(In lieu of water pumped)

36. Commercial Water Purchased.	36. Commercial Water Purchased.

F. STEAM GENERATION

(Apportionment Account)

OPERATION:	OPERATION:
37. Operating Labor.	37. Operating Labor.
38. Fuel for Steam.	38. Fuel for Steam.
39. Water for Steam.	39. Water for Steam.
40. Miscellaneous Steam Supplies and Expenses.	40. Miscellaneous Steam Supplies and Expenses.
MAINTENANCE:	MAINTENANCE:
41. Maintenance of Boiler Plant Equipment.	41a. Maintenance of Boilers and Boiler Auxiliary Equipment. 41b. Maintenance of Coal and Ash-handling Equipment.
42. Maintenance of Boiler Plant Buildings, Fixtures and Grounds.	42. Maintenance of Boiler Plant Buildings, Fixtures and Grounds.

FORM FOR WATER WORKS ACCOUNTS—(Continued)

G. POWER GAS PRODUCTION

(Apportionment Account)

OPERATION:

43. Gas Producer Operating Labor.
44. Gas Producer Fuel.
45. Gas Producer Water.
46. Miscellaneous Gas Producer Supplies and Expenses.

MAINTENANCE:

47. Maintenance of Gas Producer Equipment.
48. Maintenance of Gas Producer Buildings, Fixtures and Grounds.

OPERATION:

43. Gas Producer Opertaing Labor.
44. Gas Producer Fuel.
45. Gas Producer Water.
46. Miscellaneous Gas Producer Supplies and Expenses.

MAINTENANCE:

47a. Maintenance of Gas Producers and Gas Producer Equipment.
47b. Maintenance of Coal and Ash-handling Equipment.
48. Maintenance of Gas Producer Buildings, Fixtures and Grounds.

H. PUMPING

(Apportionment Account)

49. Water Utility Proportion of Total Pumping.

49. Water Utility Proportion of Total Pumping.

II—DISTRIBUTION

OPERATION:

50. Distribution System Operating Labor.
51. Customers' Premises Expenses.
52. Distribution System Supplies and Expenses.

MAINTENANCE:

53. Maintenance of Transmission Mains and Storage Facilities.
54. Maintenance of Distribution Mains.
55. Maintenance of Services.
56. Maintenance of Hydrants.
57. Maintenance of Meters.
58. Maintenance of Fire-cisterns, Basins, Fountains and Troughs.
59. Maintenance of Distribution Buildings, Fixtures and Grounds.

OPERATION:

50a. Patrolling Storage Facilities.
50b. Labor Removing and Resetting Meters.
50c. Street Department Labor.
50d. Meter and Fittings Department Labor.
51. Customers' Premises Expenses.
52a. Street Department Supplies and Expenses.
52b. Meter and Fittings Department Supplies and Expenses.

MAINTENANCE:

53a. Maintenance of Transmission Mains.
53b. Maintenance of Reservoirs, Tanks and Standpipes.
54. Maintenance of Distribution Mains.
55. Maintenance of Services.
56. Maintenance of Hydrants.
57. Maintenance of Meters.
58a. Maintenance of Fire-cisterns and Basins.
58b. Maintenance of Fountains and Troughs.
59. Maintenance of Distribution Buildings, Fixtures and Grounds.

III—COMMERCIAL

60. Collection Expenses.
61. Promotion of Business Expenses.

60a. Collection Salaries and Commissions.
60b. Reading Meters and Delivering Bills.
60c. Collection Supplies and Expenses.
60d. Uncollectible Accounts (Reserve Charge).
61a. Promotion of Business, Salaries and Commissions.
61b. Promotion of Business, Supplies and Expenses.

IV—GENERAL

Class B

OPERATION:

62. General Office Salaries.
63. General Office Supplies and Expenses.
64. Law Expenses—General.
65. Miscellaneous General Expenses.
66. Railroad Commission Expenses.

MAINTENANCE:

67. Maintenance of General Office Equipment.
68. Maintenance of General Office Buildings, Fixtures and Grounds.

Class A

OPERATION:

62a. Salaries of General Officers.
62b. Salaries of General Office Clerks.
63a. General Office Rent.
63b. Miscellaneous General Office Supplies and Expenses.
64. Law Expenses—General.
65. Miscellaneous General Expenses.
66. Railroad Commission Expenses.

MAINTENANCE:

67. Maintenance of General Office Equipment.
68. Maintenance of General Office Buildings, Fixtures and Grounds.

V—UNDISTRIBUTED

Class A and Class B

69. Injuries and Damages.
70. Insurance.
71. Stationery and Printing.
72. Operation of Stores Department.
73. Maintenance of Stores Department Equipment.
74. Maintenance of Stores Department Buildings, Fixtures and Grounds
75. Operation of Utility Equipment.
76. Maintenance of Utility Equipment.
77. Maintenance of Utility Equipment Buildings, Fixtures and Grounds.

DEPRECIATION

Class A and Class B

Depreciation Reserve Charge.

CONTINGENCIES (EXTRAORDINARY)

Class A and Class B

Contingencies (Extraordinary).

TAXES

Class A and Class B

Taxes.

DEDUCTIONS FROM GROSS INCOME

Class A and Class B

Interest on Funded Debt.
Interest on Real Estate Mortgages.
Interest on Floating Debt.
Contractual Sinking Fund Requirements.

INCOME ACCOUNTS

OPERATING REVENUES

Class A and Class B

Earnings from Commercial Sales.
Earnings from Industrial Sales.
Earnings from Municipal Hydrant Rentals.
Earnings from Sales for Street Sprinkling.
Earnings from Sales of Municipal Departments.
Miscellaneous Earnings from Operation.

NON-OPERATING REVENUES

Class A and Class B

Profit on Merchandise Sales.
Profit on Piping and Connections.
Rents from Land, Buildings and Apparatus.
Interest on Deposits.
Interest and Dividends from Investments.
Appropriations from Municipal Funds (for Municipal Plants only).
Miscellaneous Non-operating Revenues.

the decimal system familiar to many as that forming the basis of the Dewey system of library cataloguing. Each item has a number, generally composed of three or four figures, in which each figure has a significance. Thus, if the first figure of the number is 1 the item is included under the general head of fixed assets. If it is 2, under the general head of floating and nominal assets; 3 signifies liabilities; 4 signifies proprietary interests; 5, operating revenues; 6, operating expenses; 7, miscellaneous revenues; 8, miscellaneous expenses; 9, profit and loss allocation. If the first figure is 1, the second figure has the following significance: If 0, the outlays for uncompleted properties; 1, intangible general assets and properties; 2, tangible general properties; 3, water supply collecting system properties; 4, purification system properties; 5, pumping system properties; 6, distribution system properties; 7, incidental operating properties; 8, accessory enterprise properties. A third figure would also have its significance, 0 indicating outlay. If the number should be 140 it would signify outlays for purification system properties. Other figures are assigned values which do not, as far as we see, follow any general law; 141 indicating settling basins, 142 coagulant basins, 143 softening and iron removal plant, 144 roughing filters, 145 slow sand filters, 146 mechanical filters, 147 ozone sterilizing and aeration plant, 148 chemical treatment plant and 149 clear water basins.

It is seen from the above that the numbers may run up to 999, and in fact meanings have been assigned to probably three-fourths of this number. A fourth figure also may be added. For instance after 149, clear water basins, we have 1491 land, 1492 basins, 1493 buildings, etc. The system is therefore seen to allow for 9,999 items, although probably not more than one-fourth of these have yet had significance assigned to them. This would seem to be overwhelming to the superintendent of

even a large plant; while to one in charge of a small plant, to whom the bookkeeping is but an item which occupies him one or two unpleasant days of each month, such a system would appear to be absurdly complex. It may be that this will be found to be the case; but before coming to such conclusion it must be borne in mind that the system is intended to be broad enough to cover all possible cases, and that a large number of items would never need to be used by the great majority of water works plants.

For instance, if the plant does not operate a purification system the numbers beginning with 14 would be missing. If it is a gravity plant the same would apply to those beginning with 15. The same conditions would eliminate 63, purification system operating expenses, and 64, pumping system operating expenses. It would appear, however, as though at least two-thirds of the items would apply to even the small plants, although there might be not more than one item, and in some years none at all, to be placed opposite certain of the numbers. In such a case we presume it would be sufficient to use a system of numbers each having two figures only, thus confining the total number of items to less than 100.

We had it in mind at first to publish a list of the numbers to which meanings had been assigned by this committee, but abandoned the idea on making a rough calculation that there were at least two or three thousand of these, and we doubt whether we are warranted in devoting that much of our space to such a list. The full report will be published in the proceedings of the society.

PUBLICITY AND THE BUDGET

The idea of informing the people concerning more of the details of the results obtained by the expenditure of public funds is receiving wider approval continually, and is both an indication of and an incentive toward increased interest of citizens in public affairs. One of the latest illustrations of this is the decision of the Board of Estimate and Apportionment of New York City to hold an exhibit next October previous to the adoption of the budget for the coming year. In addition to charts, diagrams, plans and photographs which will illustrate the work done by the current expense budget, there will be other illustrated material showing the relation of next year's budget to the corporate stock budget and to other permanent improvements which are either in progress or are projected. The object is stated to be "to fully acquaint the taxpayers with the character and scope of the budgetary proposals and to afford ample opportunity for their public discussion."

It is believed that this will be the first exhibit of the kind ever given by officials of any city, but that other cities will probably follow New York's example and thereby inform the people concerning the city's finances by a method more likely to receive attention than statistical reports which, when stated most plainly (as they seldom are), are difficult for the average citizen to understand. For this, as for much of the recent publicity given to New York's finances and official doings, much credit is due the Bureau of Municipal Research, and it is to the credit of the city officials that they avail themselves of the services of the bureau to such an extent as in their judgment is desirable.

CITY EXPENDITURES

Prof. Charles Edward Merriam, member of the Chicago City Council and Chairman of the Commission on Municipal Expenditure, has presented, in the University of Chicago Magazine, a comparison of municipal expenditures in the largest five European and five American cities, giving both expenditures per capita and the percentage of total expenditures which is devoted to each of the several classes of disbursements.

The per capita expenditures in the United States are seen to average larger in practically every branch except those of charities and corrections, miscellaneous streets, sewers, and municipal industries. The greater cost of sewers in the European cities is due, we believe, to the fact that they each purify their sewage in some way; whereas in the American cities cited this is not the case, except for the long outlet and pumping of part of the sewage in the case of Boston. The greatest difference is seen in the expenditures for fire protection, which are five to ten times as great in the American cities as in the European. One of the peculiarities shown by these figures is the fact that New York, Chicago and Philadelphia each devotes just 17 per cent of the general ordinary expenditures to police protection, and St. Louis is only 1 per cent behind. There is considerable uniformity also in the percentages of fire-department expenditures and those for charities and corrections. In the other columns the figures are seen to be quite diverse.

CITY EXPENDITURES

PER CAPITA ORDINARY EXPENDITURES

	Police	Fire Department	Health	Charities and Corrections	Miscellaneous Streets	Street Cleaning and Refuse Disposal	Street Lighting	Sewers	Municipal Industries	Schools	Libraries	Recreation
London	$1.92	$0.23−	$0.17−	$4.79	$2.21	$2.20	$0.43+	$0.47	$1.01	$3.00	$0.15+	$0.44−
Paris	2.56	.26	.10	4.25	1.56	.89	.67	.50	.89	2.69	.24−	.22
Berlin	2.90	.27	.07	2.63	.20	.52	.04	.69−	1.13	3.89	.03−	.29
Vienna	1.23	.16−	.02	1.92	1.03	.45	.07	.25	2.71	3.69	.02+	.34
Glasgow	.85−	.12	.32	1.94	.38	.76−	.58−	.13	8.14	2.14	.04−	.35
New York	3.52	1.82	.46	1.90	.72	1.49	.39	.19	1.47	6.08	.29	.65
Chicago	2.13	1.14	.13	.18	.19	.59	.19	.20	1.01	3.77	.14	.93
Philadelphia	2.26	.92	.24	1.20	.79	.83	.94	.09−	1.22	3.89	.22	.50
St. Louis	2.43	1.62	.22	1.21	1.19	1.25	.79	.12−	1.39	3.47	.11	.35
Boston	3.27	2.39	.33	2.89	1.95	1.73	1.29	.55	2.40	6.25	.57	1.70

PERCENTAGE DISTRIBUTION OF GENERAL ORDINARY EXPENDITURES

	Police	Fire Department	Health	Charities and Corrections	Street Cleaning and Refuse Disposal	Street Lighting	Sewers	Miscellaneous Streets	Schools	Libraries	Recreation
London	10.5	1.4	1.03	29.0	8.2	2.6	2.9	13.7	18.6	0.95	2.7
Paris	15.7	1.5	.59	25.0	5.4	3.9	2.9	9.3	15.9	1.3	1.3
Berlin	26.7	1.5	.50	19.0	6.6	.3	4.8	.1+	26.4	.18	2.0
Vienna	10.2	1.3	.19	15.9	8.9	.6	2.0	8.6	29.4	2.0	2.8
Glasgow	9.7	1.4	3.70	22.6	6.9	6.7	1.8	4.4	24.9	.4	4.1
New York	17.0	7.7	1.6	8.3	2.4	2.2	1.0	3.9	29.	1.4	2.0
Chicago	17.0	8.9	8.9	6.9	5.4	1.5	1.7	1.7	36.	.7	2.9
Philadelphia	17.0	6.7	1.9	7.0	3.7	7.4	.69	6.6	23.	1.4	3.0
St. Louis	16.0	9.4	1.5	7.2	3.7	5.5	1.5	8.2	22.	.7	1.7
Boston	12.0	8.7	1.2	12.2	8.8	5.1	2.2	7.7	23.7	1.8	4.2

ELECTROLYSIS OF IRON MAINS

Summary of Present Information—Value of Insulating Joints and Insulating Mains—Paints Useless—Railway Return Circuits

THE Committee on Electrolysis of the American Gas Institute, which had for some years been investigating the subject of electrolysis of gas mains, has made to the Institute a report which it desires to have considered final, although it does not consider that the question has been permanently or satisfactorily solved. The committee arranged with Prof. Albert F. Ganz, of Stevens Institute, to act as their consulting engineer, and the report is practically that of Professor Ganz. Difficulty in making the investigations has been experienced because of the necessarily tentative character of many of the conclusions from private investigations and the fact that these are invariably of a confidential and generally delicate local character. In general, the methods employed for protecting gas mains from electrolysis would apply to iron water mains also.

Professor Ganz stated that he secured by correspondence information concerning the experiences of 60 piping systems scattered all over the country, and from these prepared his conclusions. The methods of protecting pipe lines he grouped into two classes, the first consisting of the introduction into the piping system of insulating pipe joints so as to break up the electrical continuity of the piping system, the second method consisting in insulating the pipe from the ground. The natural solution of the entire trouble is to get the railway companies to take care of their own currents, which is completely accomplished by using an insulated return circuit. Even without this, such currents can be rendered almost negligible by proper track bonding and the insulation of properly proportioned return feeders, with the addition in some cases of negative boosters. Great reduction of stray currents can be accomplished by insulating the negative busbars at the power station, and running out properly proportioned insulated return feeders to various points in the track network. In two American cities this method has reduced the stray currents on piping systems to less than one-tenth of its former value.

If the underground pipe system is a continuous electrical conductor of low resistance and is affected only by currents from known sources, it may be protected by metalically connecting it to the negative return circuit of each source. Such a bonding method, however, greatly increases the current flow on the system and produces other changes, as, for instance, at a high resistance point, which may develop in a joint; here the current may shunt around such a high-resistance point and produce corrosion. The greatest objection, however, lies in the danger that such a bonded system constitutes to all other underground metal system. If we connect one piping system to the negative busbar we render it highly negative to all other underground metallic structures and induce current to flow to this piping system, thereby increasing the electrolytic dangers to other systems and producing also other dangers, such as fire hazard from sparks or arcs. In one instance a piping system so bonded carried so much current that explosions and fire resulted, and in one case a mechanic who was repairing the pipe was severely burned. Professor Ganz, therefore, believes this method seriously objectionable.

Two methods of treating the piping system to rid it from stray railway currents are considered, namely, insulating pipe joints and insulating pipe coverings. Of 64 replies received dealing with this subject, 39 reported experiences with cement joints in mains. Of these, 13 stated that no trouble whatever from electrolysis was found, although these were in most cases based simply on general experience and not on tests. Seven reported some electrical corrosion on the mains; one, the complete destruction of the structure of the cast iron at the joints, and another, signs of pittings near a number of joints. In 20 cases electrolytic destruction of service pipes connected to cement-jointed mains was reported, this trouble being very severe in several instances. In some cases examined current was found entering a house by the water service pipe from the water main, passing to the gas service at some point of contact and leaving the gas service pipe to return to the railway tracks. Tests showed that the water main, laid with lead joints, was carrying a large amount of current, while none could be found flowing on the cement-jointed gas mains. From experiments made Professor Ganz believes that a pipe laid with all cement joints has such a high electrical resistance, that, with the potential differences ordinarily found in the ground, no measurable current can flow along it.

Nineteen of the replies reported experiences with special forms of insulating joints, most of these being individual high-pressure lines to which no service pipes are connected. In four of these every coupling is made an insulating joint and it is reported that no stray circuits are carried and there is no trouble from electrolysis. In 12 instances a comparatively small number of insulating joints are used, and it is reported that there is no trouble from electrolysis, although most of the lines have not been in service for sufficient time for definite conclusions. In two high-pressure lines where insulating joints were spaced 500 feet apart, serious electrolytic damage resulted. One reply reported that an entire city gas supply system is laid with wrought-iron pipe, with nearly all the couplings insulated joints; and after six years of service no trouble from electrolysis has developed. In another case a high-pressure wrought-iron main, laid with all Dresser joints, several miles long and paralleling and running close under trolley tracks for a considerable distance, did not show any measurable flow of current, and during five years of service has given no trouble from electrolysis.

Sixteen replies reported experiences with insulating pipe coverings, all but two referring to service pipes. Of the two mains provided with an insulating covering, one is a 2-inch high-pressure line one mile long, which was covered with a box and filled with pitch, but electrolytic trouble developed at several points, at some of which the covering was found to be defective. The trouble is said to have been overcome by the additional precaution of insulating a number of joints along the line. The second protected main is a high-pressure 3-inch wrought-iron pipe. An attempt to protect this by covering with a box filled with concrete was unsuccessful, and a portion in which the box was filled with 2 inches of pitch also developed electrolytic troubles at points where the covering was found mechanically damaged. In five cases service pipes were painted with some compound, usually containing tar, which was found to protect the life of the services, but not to prevent electrolysis. Five were covered by boxes filled with pitch, which proved effective in four cases. Four services in which cement or concrete was substituted for the pitch had their life prolonged, but were not protected from electrolysis. Special experiments made by a number of experts have shown that concrete does not protect iron or steel from electric corrosion.

In this connection Professor Ganz quotes from a paper of Mr. R. B. Harper, Chief Chemist of the People's Gas Light & Coke Company, of Chicago, the results of an exhaustive investigation of a large number of pipe coatings and coverings. Mr. Harper's conclusions were as follows:

1. That paints, as a rule, do not prevent electrolysis, but some, no doubt, have a beneficial effect in curtailing soil corrosion.
2. That the appearance to the naked eye of a paint film is no indication of its permeability to water.
3. That corrosion of metal may take place beneath a paint film without apparently affecting the appearance of same.
4. That the metallic body, before being covered, must be smooth and free from rust, moisture, loose scale and foreign matter in order that it be preserved.
5. That, in general, dips applied hot are better than paints and probably furnish the key to the solution of the prevention of corrosion.
6. That concrete of itself is not an efficient protection against electrolysis.
7. That ingredients such as rubber, tallow, lime, etc., usually have a deleterious effect upon the efficiencies of coal-tar pitch.

In summing up, Professor Ganz states that because a given

piping system is not suffering from electrolysis is no evidence that the system is actually free from stray currents and immune from electrolysis. The effect of electrolytic corrosion with cast iron is to oxidize the iron, leaving the iron oxide and graphic carbon in place, whereby the form of the pipe is kept intact, and yet the pipe may be seriously weakened at a great number of points.

Cement joints may practically be classed with insulating joints, and a line laid with insulating joints is a discontinuous electrical conductor, not capable of carrying stray currents. A piping system with all insulating joints is, on the whole, much less likely to be affected by electrolysis than one with all-lead joints or screw couplings. Such a system is by no means immune from electrolysis, however, numerous instances being reported where cement-jointed mains, and especially the service pipes from such mains, have suffered severely from electrolysis. Where this is due to currents introduced from other systems through service connections, an insulated coupling in the service pipe would probably prevent the trouble. It is conceivable also that the earth currents may be of sufficiently high density to produce electrolytic action upon insulated pipes, although reasonably good construction of railway return circuits would prevent this. A few individual insulating joints may do more harm than good, although there are undoubtedly cases where the installation of a few such joints at proper places will greatly reduce, if not eliminate, electrolysis.

Lead joints tested by Professor Ganz are found to ordinarily have resistance equal to 10 or 20 feet of continuous iron pipe, although some have been found with a resistance equivalent to two miles of continuous pipe. He has found that a surface scale of oxide, such as is found coating pipe imported from Scotland years ago, has such a high surface resistance as to be practically an insulating covering, and such old pipes are much less subject to trouble from electrolysis than new pipes. Also the contact between the iron and a lead joint seems to decrease with time, so that an old lead joint offers more resistance than a new one.

As to insulating pipe coverings, the only kind which appears to afford certain protection is a layer of at least one or two inches of a material like coal-tar pitch or asphaltum, which is not brittle enough to crack, but is hard enough to remain in place. Apparently the best method of applying this is to surround the pipe with a wooden box, support the pipe upon creosoted blocks of wood or upon blocks of glass, and then fill the space between the box and pipe with the molten bituminous substance, introducing, as a further protection, an insulated coupling at each end of the section covered, so that, even if the covering should become defective at any point or points, no current can reach these points to corrode them by electrolysis. However, the cost of carrying out such an installation is absolutely prohibitive, except in a few cases, such as service pipes in very bad localities or some very important independent pipe lines of small size. The portions which must be insulated can be determined only by properly conducted electrical tests.

Professor Ganz believes that the only possible certain cure for electrolytic troubles is an insulated railway return system, but that in nearly every case where serious stray railway currents flow on piping systems a very great reduction of these currents can be accomplished by improvements in the return circuit of the railways. After this has been done there are many cases where insulating methods judiciously applied to the piping system will further greatly reduce the stray currents which still remain.

WATER FOR PUBLIC USE; TWO METHODS

MANISTEE, MICH., in 1909 had 184 fire hydrants. The water works is municipally operated. There were also 7 drinking fountains using 21,000 gallons a day and costing $175 a year for maintenance. The city paid the department $10,000 a year for these and $587 for schools, street sprinkling and other purposes; or more than one-third of the total income.

The Erie, Pa., department furnished water for 865 fire hydrants, 11 drinking fountains, a number of park fountains, street sprinkling, sewer flushing and numerous buildings, valued at $39,754. It has been doing similar service for years, and the commissioners say in their latest report, "No money has ever been paid by the city for this service." The estimated value of this service is about one-fifth of the total receipts of the department.

PUBLIC CONVENIENCES IN LONDON

GREATER LONDON comprises a number of "cities and boroughs." With respect to public conveniences perhaps the city of Westminster is the most representative, and these are described as follows by its Town Clerk:

"The accommodation is of two kinds, viz.: (a) Underground public conveniences for men and for women, of which there are 17 in Westminster, the majority situate in busy streets; and (b) above-ground urinals for men, of which there are 40. The underground public conveniences are mostly constructed under the streets, or under the public parks adjacent to and with means of access direct from the streets. They contain urinals, water closets and lavatory accommodation. In the case of one of these underground conveniences there is also a dressing room, which can be hired on payment of a small fee. A charge of 1 penny (2 cents) is made (by means of penny-in-the slot locks) for the use of the water closets, and 2d, (4 cents) for the use of the lavatories. I give particulars of the accommodations, the average cost of maintenance and working during the five years ended March 31, 1909, and the average receipts during the same period in the case of two of the principal conveniences, those at Marble Arch (Hyde Park) and at Piccadilly Circus.

CONVENIENCE	ACCOMMODATION		Average Annual Cost of Maintenance and Working	Average Annual Receipts
	Men	Women		
Marble Arch....	24 water-closets... 12 lavatory basins 72 urinals.....	10 water-closets... 4 lavatory basins	$3,946	$6,161
PiccadillyCircus	14 water-closets... 10 lavatory basins 20 urinals.....	6 water-closets... 5 lavatory basins	4,618	9,781

"The underground conveniencese are opened at 7:30 a. m. on week days and at 9 a. m. on Sundays; most of the men's conveniences are kept open till 1 a. m., and most of the women's conveniences till midnight. There is an attendant always in charge at each underground convenience, and at the larger conveniences, two attendants."

WORK OF BOARD OF HEALTH

PROBABLY few citizens realize the amount of work done by an active and efficient Board of Health in a large city. To give some idea of this we refer to the report of the Health Officer of Washington, D. C., for the week ending June 18, which we presume is about an average week. Under the head of "Sanitary Inspection" we find that that officer served notices to abate 360 nuisances, 341 of which were reported abated. Inspection also was made of 226 barber shops, 11 lunch rooms, 13 saloons, 67 stables, 79 privies, 171 laundries, 2 sewage disposal systems; and 27 house-to-house inspections were made and 5 chicken applications passed upon. The food inspector examined 270 grocery stores, 111 huckster wagons, one bakery, 49 confectionary stores, 31 markets, 31 bread wagons and 31 dairies. He also collected for chemical analyses 124 samples of milk, 16 of cream and 19 of lard; and for bacteriological examination 25 samples of milk, 6 of cream and 2 of water. Inspection also was made of dairy farms to the number of 22 in the District of Columbia and 43 in Virginia, 1,357 cows being examined. The tuberculin test was applied to 17 cows, 5 of which were condemned and ordered removed from the herd. Four notices were served to correct existing conditions. Seventeen slaughter houses were visited in the District of Columbia.

There were 146 observations made of stacks for smoke, but no cases referred to Corporation Counsel for prosecution.

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JULY 6, 1910

CONTENTS.

Tar Macadam in Fitchburg, Mass. (Illustrated.) By David A. Hartwell, City Engineer	1
Use of Refuse Clinker	2
Baltimore High-Pressure Fire System. (Illustrated)	3
An Endless House. (Illustrated.)	6
Septic Tank Litigation	6
Creosote for Wood Blocks. By Richard Lamb	7
Cement Tests for Louisville Sewers. (Illustrated)	8
Forms for Water Works Accounts	9
Publicity and the Budget	12
City Expenditures	12
Electrolysis of Iron Mains	13
Water for Public Use; Two Methods	14
Public Conveniences in London	14
Work of Board of Health	14
Free Water	15
Duplicate Trunk Water Mains	15
Board of Health Warnings	15
Shade Tree Pests. (Illustrated)	16
Regulation of Water Companies	17
Memphis Water Works	18
Atlantic City Notes	18
Removal of Dead Animals. By John Simpson	18
Disposing of Dead Animals. By Charles Claude Casey	19
News of the Municipalities. (Illustrated)	21
Legal News—A Summary and Notes of Recent Decisions	30
News of the Societies	31
Personals	32
Patent Claims. (Illustrated)	33
Incorporations	33
Municipal Appliances. (Illustrated)	34
Trade Notes	35
The Week's Contract News	36

Free Water

A LARGE city in the Middle West is reported to contemplate paying practically all the expenses of the Water Department from the general treasury, furnishing all water absolutely free except in the case of large quantities used for commercial purposes. This will mark a decided change in the policy of the city, since it is at present one of the most completely metered cities in the country. We see no reason why the arguments which would lead to the adoption of this practice should not point with equal conclusiveness to the furnishing of free electricity by a municipal plant to all citizens for lighting purposes, charge being made for nothing except the use of large amounts of current for power purposes. The last half century has seen toll roads and toll bridges purchased by municipalities and thrown open to free use. Should not cities purchase the street railways and give free transportation on them? Perhaps all this is coming, but we doubt whether our cities at large are ready for it yet; and if not for all of them, we see no reason for making an exception of the water supply.

Duplicate Trunk Water Mains

ON another page will be found reference to the fact that during 1909 the city of Memphis laid a duplicate water main from the pumping station to the center of the city, thus removing a danger which previously existed, in that a rupture in the main which then served as the sole supply to the city would have shut off practically all water in a large and important area.

It would seem as though all cities would realize the importance of this and provide a double connection between the main source of supply and the part of the town where is found the greatest fire risk and the bulk of the population. It would appear, however, that such is not the case. Within the past week two instances have come to our notice of serious inconvenience caused by breaks in trunk mains which interrupted the supply to the entire town for hours; during which time, had a fire broken out, there would have been no means for extinguishing it. One of these was at Newburgh, N. Y., where a 20-inch main from the reservoir was broken by blasting nearby, and the town was without water supply for a considerable number of hours. A few days previous Muskogee, Wis., was similarly deprived of water for about 24 hours by a break between the pumping station and the city, which occurred without any apparent cause. Although a check valve retained the water in the standpipe, this was emptied before night. The light and power company, having no water to cool their gas engines, was unable to furnish light for its customers; and the fire department patroled the city as a precaution against fires. In addition was the inconvenience suffered by practically all the citizens who suddenly found themselves without any water in their homes.

The most serious danger is, of course, that of fire. It needs merely a mention of the fact to convince any one that the breaking out of any considerable fire when there is no water in the mains might lead to the destruction of a large proportion of the buildings in a city. The only sure safeguard against such a calamity is providing two lines of pipes leading from a source of considerable supply—either a pumping plant or a reservoir—to the distribution system at the heart of the city. Moreover, these should be at some distance from each other; and at any danger points, such as creek crossings, be as far as possible so located that the falling of a bridge, or other possible cause of destruction of one of the mains, should leave the other unaffected.

Board of Health Warnings

IN connection with an epidemic of typhoid fever from which Milwaukee, Wis., has been suffering for some weeks past, and which is attributed to the water supply by Commissioner of Health W. C. Rucker, the commissioner has distributed generally throughout the city small folders warning all citizens to boil all water intended for human use. In this form it will, he believes, receive more general notice than if merely published in the daily papers. As many of the citizens are of foreign birth and read English with difficulty, if at all, these notices have been published not only in English but also in German, Yiddish, Bohemian, Polish, Crotian, Italian and Greek. The English wording of the warning is as follows:

Boil your drinking water! Diarrhoeal diseases, such as typhoid fever, cholera infantum, etc., are caused by drinking raw water and eating food soiled by human filth.

Avoid all such diseases by boiling all water intended for human use.

Kill flies and prevent their breeding. Keep your premises clean.

Avoid contact with persons having diarrhoeal diseases.

How much effect this notice will have upon the ignorant or the careless it is difficult to say; but at least the health department is endeavoring to do its full duty so far as warning the people is concerned. If it is reasonably certain that the typhoid is due to drinking water it would seem as though the city had another most imperative duty, and one which, if performed, would be much more certain in its results than any amount of warnings could be expected to be.

SHADE TREE PESTS

Elm Leaf Beetle—Tussock Moth—Leopard Moth—Wooley Maple Scale—Bronze Birch Borer—Chestnut Bark Fungus

THE report for 1909 of the Shade Tree Commission of East Orange, N. J., of which Mr. Alfred P. Boller is president and Mr. William Solotaroff is secretary and superintendent, gives some valuable information concerning the treatment of trees for insect pests; and a few weeks ago the commission issued a notice to the citizens of that city concerning the elm leaf beetle. From this report and notice we abstract the following information:

One of the most serious pests in that section of the country is the elm leaf beetle. The ravages of that insect promise, according to the State entomologist, to be even more serious than in 1909; and the commission has been spraying all elm trees as soon as the foliage developed. The commission, however, can use public funds for spraying trees in the streets only; but since the thorough control of the pest requires that elm trees on private grounds be sprayed also, they have offered to spray trees on private property which can be reached by the regular length of hose from street or driveway, at a charge of $2.00 a tree. The same offer was made in 1909, and 60 property owners paid for the spraying of 77 large elms on their properties. Many, however, neglected to have their trees sprayed, and by midsummer there was a striking contrast between sprayed and unsprayed trees, in some cases less than 50 feet separating trees with full foliage and others completely defoliated.

Spraying of trees last year began on May 18 with a machine operated with liquid carbon dioxide, and two days later a gasoline sprayer also was at work. Rain interfered with the spraying of all trees as promptly as desired, but this was continued during the period of incubation with good results, and although some of the leaves were eaten by the adult beetles, there were few egg masses; and although some of these were deposited and hatched out, practically all the larvæ were poisoned as soon as they began to feed. By July 7th not a single unsprayed tree within city limits was free from the attack of the elm leaf beetle.

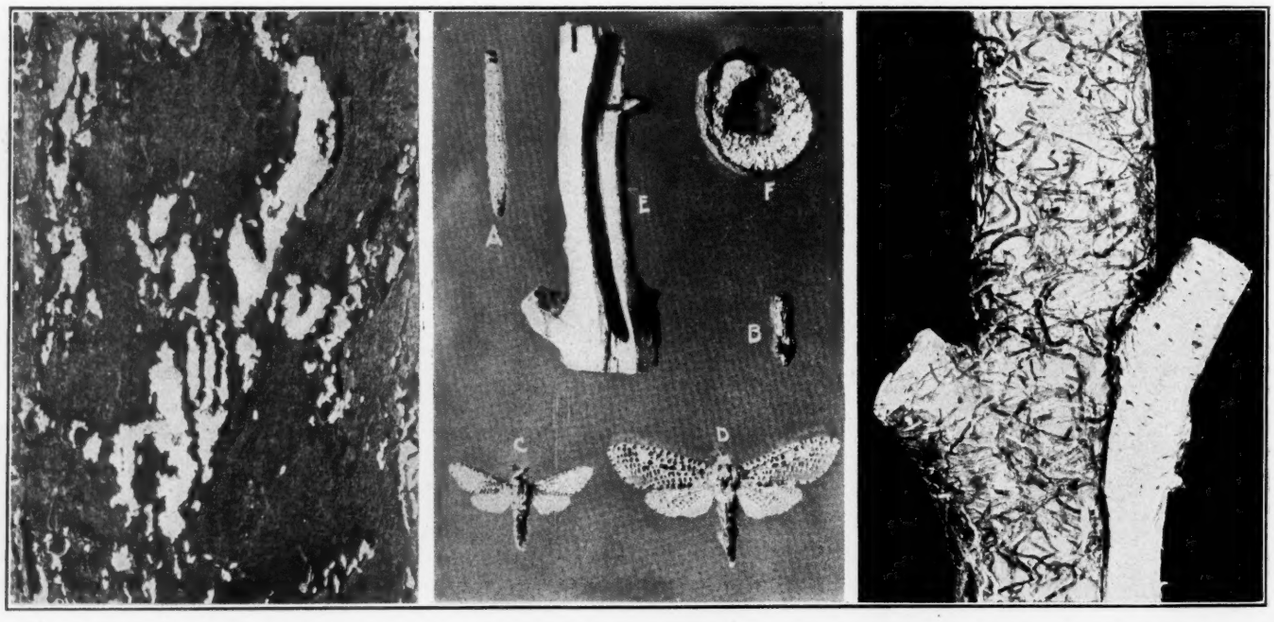
Concerning the habits of this pest, Mr. Solotaroff states in his notice this year: "The winter of the elm leaf beetle is passed in the adult condition, the beetles taking shelter in attics, sheds, barns and other places of a similar nature. They emerge from their hibernating quarters as soon as the foliage of the elm develops in the spring, take to the leaves and eat holes through them. During the latter part of May and early June eggs are deposited by the beetles on the under side of the leaves, from which caterpillars hatch. These feed on the layer of cells of the under side of the leaves, giving the foliage a skeletonized appearance.

"Beginning during the last days of June and continuing until the middle of July, the full grown larvæ, which are less than half an inch long, crawl down the trunk and change to yellow pupæ at the base of the tree and on the ground near it. Adults develop about a week after the formation of the pupæ, and in the latter part of July the summer brood of beetles is abundant. These fly to the leaves again, feed on them, deposit eggs, and the life cycle of the insect is repeated. There are two broods a year.

The only effective way to control the elm leaf beetle is to spray the foliage with arsenate of lead as soon as the leaves unfold. This spraying is important, because if the beetles can be killed before they lay their eggs there will be no larvæ to deal with later.

It is this early spraying to catch the adult beetles that the Shade Tree Commission is planning to do, and it is expected that all the elms along the curb will be treated. To spray elm trees properly, so that the tops of the trees are reached, requires a powerful apparatus, which every citizen cannot be expected to have.

If early spraying is neglected, an application of arsenate of lead is necessary when the larvæ begin to feed. This spraying is not as effective as the early spraying. When the full grown larvæ crawl down the trunks to pupate, great numbers of them collect in the crevices of the bark at the base of the



WOOLEY MAPLE SCALE
In cocoon condition in crevices of bark of a sugar maple

LEOPARD MOTH
A Caterpillar
B Pupa
C Male moth
D Female Moth
E and F Borings of larvæ in sugar maple

BRONZE BIRCH BORER
Galleries made by larvæ in cambium layer of white birch

elms and on the ground near the trees. At that time every owner of a tree can do his part to destroy the pest by sweeping up the caterpillars as they come down, and killing them by pouring hot water over them."

Among other pests in Northern New Jersey are the tussock moth, the leopard moth, plant lice, wooley maple scale, bronze birch borer, and chestnut bark fungus.

Destruction of the tussock moth is effected by destroying the egg masses which remain on the trees all winter; generally by collecting and burning.

The leopard moth is a borer and is the most destructive species attacking city trees, especially the maples, the lindens and horse chestnuts. The caterpillars bore into the wood, and when a large wound is made on the side of a branch the bark covering it breaks away, the wood is exposed, dries and checks, and the successive annual layers do not cover the scar, so that the circulation of sap is retarded and the end of the limb dies. The injury to the trees in such cases is not immediately apparent, but is none the less fatal. It takes two years for this insect to develop from the egg to the adult condition. During the first summer the caterpillar restricts its operation to small twigs and branches; during the second season it bores into main branches and the trunks of infested trees. It is during the second season that the greatest injury is done. Two methods are used by Mr. Solotaroff to kill these borers; by injecting carbon bisulphide into the burrow and plugging the opening with putty, and also by using a wire. The latter method was found to be the more rapid. Small branches which were badly infested were entirely removed. While it is difficult to get at the first year insects, which are on the small outer branches, since the eggs are laid only in the second year, the destruction of the second year insects prevents any further larvæ from hatching.

The wooley maple scale confines its activity almost entirely to sugar maples. The insect passes the winter in the larval form in the crevices of the bark. In this condition it has something the appearance of small particles of white wool about the size of the head of a pin, but collected together in masses of greater or less numbers. The most practicable way of fighting this pest is to wash the trunk of the trees with an emulsion of fish oil at intervals during the summer as the larvæ collect on the trunks.

The bronze birch borer attacks white birches, penetrating under the outside bark and boring galleries in the cambium

SPRAYED ELMS AND ONE UNSPRAYED

layer. This borer is practically invulnerable against any insecticides and there appears to be no possibility of saving a tree after it is once infested. The only practical and effective method yet found for checking its ravages is to cut down and burn infested trees.

The chestnut bark fungus was discovered in 1904 in the New York Zoological Park. It has spread very rapidly through eastern New York and northern New Jersey, and has caused

SPRAYING TREES WITH TWO-MAN PUMP

the death of many chestnut trees, those in wooded land as well as within city limits. Up to the present time no means has been discovered of successfully combatting this pest.

In Newton, Mass., several spraying outfits using hand pumps are employed on special work. For the past two years a hard fight has been waged against gypsy moths, which threatened the destruction of the trees in large sections of the city. There are plenty of moths about yet, but the pest is pretty well under control. In the instance shown, two oak trees, which are especially attractive food for gypsy moths, are being sprayed. The other trees, chestnuts, and hickorys, are not being treated. The work is done at the expense and with the consent of the property owner, but at the suggestion of an inspector of the forestry department. The outfit is in charge of a foreman and four men. On arrival at the property one man climbed each of the trees and drew up a line of hose after him. The two men in the wagon worked the handle of the Gould's pump and supplied ample power for two good streams of the insecticide. In less than half an hour the work was done and the gang on their way to the next job.

REGULATION OF WATER COMPANIES

THE regulation of a public water supply by a State corporation commission is something out of the ordinary, and such regulation in the State of Oklahoma a few weeks ago possesses some interesting features. The city of El Reno, Okla., with a population of about 15,000, is supplied with water by the El Reno Water Company. It was claimed that the amount and pressure of the water were insufficient and that the quality was poor, and, a complaint to this effect having been laid before the State Corporation Commission, in the name of the State Board of Health, the Commission, having heard evidence as to the truthfulness of the complaint, and deciding that the company had violated its franchise and public duty by failing to supply sufficient water for fire protection or for domestic uses above the first floor, and that it had refused to extend its mains as the town grew, ordered that the company "increase its supply of water by such reasonable means as may be most feasible, to be determined by the complaint itself, to fully supply the reasonable demands of all citizens in the town of El Reno, and that a sufficient pressure be maintained to supply water in the upper stories of the buildings in the city of El Reno."

The water company claimed that it was neither a transportation or transmission company in the sense that it transports the products of other people for compensation, and that therefore the Commission had no jurisdiction. This objection, however, was overruled under the section of the law which placed under the control of the Corporation Commission any business which,

"by reason of its nature, extent or the existence of a virtual monopoly therein is such that the public must use the same, or its services, or the consideration by it given, taken or offered, or the commodities bought or sold therein or offered or taken by purchase or sale in such a manner as to make it a public consequence or to affect the community at large to supply, demand, or price or rate thereof."

This decision was rendered May 31, of this year. Meantime, the franchise of the company having expired, an appraisement of the value of the plant was obtained by the city, as well as an estimate of the cost of a new plant. The company declined to accept the appraised value, and the citizens then voted against the purchase of the plant at a value satisfactory to the company. Bonds were then voted to build a municipal plant and steps are now being taken to dispose of these bonds for this purpose.

The above information was furnished by Messrs. Burns and McDonnell, who were employed by the city to make the appraisement of the value of the old plant and also to prepare the plans for the proposed new one.

MEMPHIS WATER WORKS

THE report for the year 1909 of the Memphis Artesian Water Department, of which Mr. Wirt J. Wills is chairman of the Commissioners and Mr. Lawrence Simpson, general superintendent of the department, is a very attractive one in appearance. According to this the net earnings during 1909 were 25 per cent larger than in 1908; in spite of the fact that the water rates were again reduced, making a total reduction of a little over 40 per cent since the plant came under municipal owenership in 1903. The department furnished to charitable institutions water valued at about $2,700 and to the city for street sprinkling, parks, etc. about $125,000 worth of water, for which it received from the city but $25,000. The free water thus contributed amounts to about 25 per cent of the gross earnings of the department.

A statement of the extension and improvements in the plant and in its operation which were made between May 31, 1903, and Dec. 31, 1909—that is, during municipal ownership—contains the following figures: Increase in length of mains, 49 per cent; in number of taps, 54 per cent; in number of fire hydrants, 49 per cent; in water pumped 24 per cent; and in capacity of plant, 90 per cent. It appears from this that the ratio between capacity and actual pumpage is now 50 per cent greater than in 1903. Also that the increase in consumption has been only half as great as that in the length of mains or number of taps. It may be a partial explanation of the latter that the number of services metered has greatly increased, there having been a net increase in 1909 of 1,382 meters, making a total of 7,183 or something over 41 per cent of all connections. Consumers have been encouraged to adopt meters by offering a minimum rate of 60 cents for 2,500 gallons, which makes it to the advantage of small consumers to use the meter rates when the flat rate would exceed $7.20 a year.

One of the important improvements of the year was the laying of a 20-inch main connecting the pumping station with the heart of the city, which connection has previously been afforded by a 36-inch main supplemented only by one or two small pipes; this condition subjecting the city to considerable danger should there be a breakage in the 36-inch main.

ATLANTIC CITY NOTES

As in previous years, the report of City Comptroller A. M. Heston of Atlantic City, N. J., contains not only a statement of the finances of the city, arranged so as to be intelligible to almost any citizen, but also gives many statistics and data concerning the property and municipal enterprises of the city. Quite complete information is given concerning the street paving, the excellence of which is a matter of pride to the city officials. On December 31, 1909, the amount of paving was as follows: Gravel, 16.0 miles; macadam, 23.1 miles; Telford, 2.0 miles; vitrified brick, 6.6 miles; bitulithic, 7.3 miles; asphalt, 2.6 miles; wood block, 0.4 miles; a total of 58 miles. The report gives the cost of each contract for paving since the year 1898, together with other data concerning material, method of payment, etc.

For cleaning this 58 miles of paving, both non-permanent and permanent, the highway department uses a considerable outfit of machinery and tools; those at the end of 1909, together with their cost, being as follows:

	Name	Cost
20	Street sprinklers	$7,000
3	Squeegee street washing machines	3,600
1	Street flushing machine	1,000
4	Street sweeping machines	340
1	Steam roller	2,000
1	Horse roller	180
1	Road scraper	200
1	Small scraper	50
1	Snow plow	15
3	Iron push carts	15
1	Hand sweeper	10
100	Snow pushers	75
25	Snow shovels	17.25
100	Street shovels	75
12	Dozen street brooms	201.60
2	Dozen picks	36
10	Sections of fire hose	350
	Together with lanterns, red flags, hatchets, etc.	

During 1909 the sprinkling of the streets cost $10,632.50 and cleaning and repairing them cost $73,855.14. How much of this was for cleaning and how much was repairing is not stated.

REMOVAL OF DEAD ANIMALS

Powers of Municipalities to Regulate—Owner's Rights to Carcasses—City's Duty to Secure Prompt and Sanitary Disposal—Licensing or Appointing Special Agents for this Purpose

By JOHN SIMPSON

THE power of municipalities to regulate by ordinance the removal of dead animals from their cities and to make contracts with one or more persons for the exclusive right of removal is somewhat akin to the question of the removal of garbage treated in a former number of this magazine (August 25, 1909). The fact that an animal has died does not deprive its owner of his property in it, and the municipal authorities cannot arbitrarily take away that property from him by giving it to another. The owner may be required by the municipality to dispose of the carcass so that it will not become a nuisance. He is, however, entitled to a reasonable time for its removal, and may remove it by the agency of others if he does not wish to remove it himself. He may dispose of it by sale, and transfer the right of removal to the vendee. (Mann v. District of Columbia, 22 App. Cas. D. C., 138; Campbell v. District of Columbia, 19 App. Cas., D. C., 131; Alpers v. Brown, 60 Cal., 447).

But the municipality is not totally deprived of the right to seize the carcass. Provided the owner is given a reasonable time within which to dispose of it himself. (Meyer v. Jones, 20 Ky. Law Rep. 1632), the city may seize it so as to prevent its becoming a nuisance. It may make ordinances granting to one person the exclusive right to remove from the city all such dead animals, not slain for food, as shall not be removed by the owner within a reasonable time. Such ordinances have been held not to be unconstitutional or invalid as creating a monopoly or depriving the owner of the carcass of his property without due process of law. (National Fertilizer Co. v. Lambert, 48 Fed., 458; Morgan v. City of Cincinnati, 9 Ohio, December, 280; City of Richmond v. Caruthers, 106 Va., 774).

As was said in River Rendering Co. v. Behr, 7 Mo. App., 345, "The city authorities would be grossly derelict if they left the chances of the removal to be determined by the owners of the animals, or by possible purchasers. They are in duty bound to appoint special agencies for the purpose, and to render

performance certain by whatever means their judgment may suggest. If they find that this certainty can be secured only by confining the agencies to a single person or corporation, upon terms of responsibility for failure to conform, it is their duty and their privilege to secure it. The agencies are appointed rather as the instrument in the hands of the municipal authorities for the fulfillment of the public duty than the beneficiary of an exclusive privilege." This language was quoted with approval by the Supreme Court of Michigan in the case of City of Grand Rapids v. De Vries, 82 N. W. 269.

But such an ordinance has been held void as to carcasses which have not yet become a nuisance. (River Rendering Co. v. Behr. 77 Mo. 91). So, an ordinance requiring the immediate removal of all dead animals, not killed for human food, without giving their owners the opportunity to dispose of them, and, hence, in effect, declaring them nuisances immediately after death, has been held to be a taking of private property without compensation and, therefore, unconstitutional (State v. Morris, 47 La. Ann. 1660). And it has been held that a city cannot require the owner of a dead animal to deposit it beyond the city limits, only at such place as the municipal authorities shall point out, or pay the expense of its removal to that place, if the owner contemplates its removal to a place without the city limits where the carcass can, in no event, become a nuisance to the city or its inhabitants. (Schoen v. City of Atlanta, 97 Ga. 697).

The city cannot arbitrarily deprive the owner of his property in the dead animal by indirect means any more than by a direct seizure. So, where a city passed an ordinance giving the exclusive privilege of removal to the public contractor, but permitting the owner of the carcass to direct where it should be taken if he paid certain fees for the privilege, the fees allowed by the ordinance being greater than the value of the carcass, it was held that this amounted, practically, to a confiscation of the property and that, consequently, the ordinance was unconstitutional (Knauer v. City of Louisville, 20 Ky. Law Rep. 193).

In an Indiana case (Vantreese v. McGee, 60 N. E. 318) a complaint in replevin was sustained, which sought to recover the body of a dead dog, the court holding that it could not be reasonably maintained that the owner of the dog, by the mere fact of its death, had lost title to whatever of value remained in its body.

Under the Ohio laws the city's council may enact ordinances prohibiting the removing or carrying through its streets of the bodies of dead animals without a permit therefor from the board of health (Morgan v. City of Cincinnati, 9 Ohio Dec. 280). Such ordinances would, of course, naturally tend to place the work of removal more firmly in the hands of the municipal authority or its contractors.

The fact that the city has contracted for the removal of dead animals within its limits does not exonerate the owner from all responsibility regarding them when it happens that the contract cannot be or is not complied with, as the following case shows. The stables of a street railroad company were burned down and 140 mules were destroyed, their carcasses being more or less burned. As the weather was warm it became necessary to remove them at once. Under a city ordinance certain contractors had the privilege of removing the bodies of dead animals to their works outside the city limits, if they were not removed by the owner within twelve hours after death. In this case it became apparent that it would take days to remove all the carcasses to the contractors' works, which were seven miles distant, and the carcasses were rapidly becoming offensive. The mayor of the city entertained a proposition to throw the carcasses into the adjacent river, and with the assent of the railroad company, who paid the bill for the work, this was done. The river at the time was high and overflowed a stone quarry into which the carcasses sank and became mixed with sediment, so that the owner could not reopen his quarry and wholly lost the use of it. He sued the city and the railroad company. It was held that the latter only was liable for the damage and that the city was not liable for the act of the mayor, who had no power to bind it by a contract for the removal of the dead bodies from the city such as he made. (Hilsdorf v. City of St. Louis, 45 Mo. 94).

After a city has lawfully granted to an individual the exclusive privilege of hauling along its streets and out of the city the bodies of dead animals, others cannot be allowed to buy up the bodies and remove them, although the privilege of doing so remains with the original owners. And the city may be enjoined from selling to the highest bidder the privilege thus granted so long as the contract remains in force. (Louisville v. Wible, 84 Ky. 290).

DISPOSAL OF DEAD ANIMALS

St. Louis Contracts with Rendering Company—Six Hundred Dollars a Year Net Profit—Number of Animals Removed and Cost of Collection

By CHARLES CLAUDE CASEY

THE disposal of dead animals, usually an expensive municipal problem, has ceased to be an expense in St. Louis, with the letting of a nineteen-year contract by the Board of Public Improvements June 3. Even a small profit over and above the cost of collection and delivery to the rendering company is provided for in the contract, amounting to $5,100 a year. In the nineteen years, if the cost of collection does not increase, the city will have profited about $11,400, after paying $85,500 for the delivery of all dead animals to the contractor at the city limits.

Having only recently escaped from a burdensome contract in which the city was required to pay several thousand dollars a year in addition to the cost of collection, the new contract offers a pleasant surprise to the officials. For a short period a year ago the city was considering itself lucky to dispose of the animals without compensation, so much better was that plan than paying the rendering people for taking the animals. When the new administration took charge, a year ago, it found no permanent methods in force, and through a temporary contract succeeded in getting a rendering company to pay the city $162 a month for the animals delivered at two receiving stations.

A few weeks ago an ordinance was passed by the Municipal Assembly authorizing the Board of Public Improvements to let a nineteen-year contract. It required the plant to be located outside the city limits, and fixed the conditions under which bids should be received. When the bids were opened, about the middle of May, the East St. Louis Rendering Company was found to have offered $550 a month for the animals, if allowed to put the plant on Chesley Island, which the city at that time proposed to purchase for that purpose, and $425 a month if it had to locate the plant on its own ground. Five other contractors submitted bids, all but one offering a premium of $100 to $125 for the privilege of using the island for a plant.

The bids, as received, were:

	With Plant on Chesley Island, per month	Plant on own ground, per month
East St. Louis Rendering Company	$550	$425
American Dessicating Company	75	272.30
J. B. Dick	302.50	202.50
Mound City Reduction Company	271	171
Leonard Haefele	202	No bid
St. Louis Reduction Company	175	No bid

After receiving the bids the Board of Public Improvements laid the matter before the City Law Department to determine if the high bid could be accepted and the contract awarded before the city acquired the island. City Counselor Walther gave an opinion that the bid based upon the use of the island was not even legal, and that all bids contemplating such use would better be rejected, any contractor being able to default on the contract without forfeiting his bond if the bids were accepted. It was intended to wait until an ordinance authorizing the purchase of the island and another ordinance authorizing its use for a dead animal rendering plant could be passed, and all bids were rejected May 31.

President Reber of the improvement board was given a tip after the bids had been rejected that no new bids anything near as good as the first ones would be received. All of the bidders except the East St. Louis concern have always worked together, each knowing what the other was willing to do, and they were reported to have gotten together on new bids. A representative of the East St. Louis concern informed the board that his people, having submitted two bids in good faith, would not compete in the reletting. A new contractor who had not made a bid in the first letting offered $600 a month, but said he would pay nothing unless allowed to render the animals inside the city limits, which disqualified him under the enabling ordinance.

It looked as if the board would be lucky to get $200 a month under a new letting, even if Chesley Island were used, unless the East St. Louis concern was bluffing, and the action of the preceding meeting in rejecting all bids was reconsidered June 3 and the contract awarded to the East St. Louis company for $425, it to furnish its own site for a plant, outside the city limits.

Besides standing to lose in a reletting, there was another factor in the letting of the contract. The law department gave an opinion that if the city awarded a dead animal contract by which the contractor was to use Chesley Island, to be owned by the city, the municipality could be made a party to any nuisance proceeding that might be brought against the company because of the plant. Several other city officials and about all the members of the improvements board except President Reber shared in the opinion. Reber contended that a provision could be put in the contract exempting the city from any responsibility from any nuisance that might result, and making the contractor agree to protect the city from harm in any suit. The opinion, however, had much weight in deciding the board to award the contract to the high bidder, using his own plant site.

Dead animals in St. Louis last year numbered 4,542 heavy animals and 7,622 dogs, the latter all from the city dog pound, delivered to the rendering company immediately after being killed, once a week. Following is the number and kind of animals by months and for the year 1909:

DEAD ANIMALS COLLECTED IN ST. LOUIS IN 1909

	Horses	Mules	Cows	Calves	Colts	Sheep and Goats	Hogs	Buffalo Deer and Elk	Total Animals	Dogs from Dog Pound	Grand Total All Animals
January	262	20	70	3	1	5	0	1	309	54	359
February	244	29	22	6	0	6	0	0	307	323	630
March	259	23	19	3	2	5	0	0	311	1220	1531
April	207	24	19	7	5	2	2	0	266	606	872
May	215	34	20	4	2	2	0	1	278	811	1089
June	259	28	28	6	4	8	1	0	334	776	1110
July	364	44	19	4	11	4	0	0	446	720	1166
August	556	58	27	4	2	4	2	0	653	805	458
September	352	35	19	3	1	3	7	1	421	567	1988
October	370	28	9	1	0	5	0	1	414	725	1139
November	326	37	23	2	0	5	0	0	383	786	169
December	371	33	8	5	0	3	0	0	420	229	649
Totals	3785	386	230	48	28	52	12	4	4542	7622	12164

It costs the city about $4,500 a year to gather the animals that die in the streets and deliver them to the receiving stations. Four wagons are employed most of the year, each requiring the services of only one man, and costing, under municipal operation, a little less than $4 a day. Each of the wagons is large enough to carry three or four dead horses, and is equipped with pulleys, etc., which enable the one man to load and unload them. Few municipalities are now getting as much for dead animals delivered at the city limits as it costs to collect and deliver them.

The price received is considered unusually good by St. Louis city officials, in view of the long term contract. At first some of the officials and citizens were of the opinion that the term extends too far into the future and probably deprives the city of possible profit from improvement in conditions connected with the rendering of dead animals. The reason for the long time contract, however, seems logical, and it is contended by the people who advocated a long term that it offered the city advantages that a short term contract would not. St. Louis commercial conditions are rapidly improving, and before the expiration of the nineteen-year contract practically all dray animals, at least, are expected to be replaced with motor-driven equipment, thus reducing, if not nearly eliminating, the dead animal problem.

Practically everything in the dead animal is turned into some profitable by-product. The hides, bones, hair, hoofs, horns (of cattle, elk, deer, etc.), shoes (of horses and mules), and the carcasses all are valuable. After the exterior products are taken off, the bones stripped, grease removed and all the other value extracted from the carcasses, the remainder is turned into a high-priced fertilizer. Some of the animals are almost worth more dead than alive.

The specifications under which the contractor must work names cats, fowls, etc., as dead animals, but few or none are ever delivered. Such animal matter is picked up almost entirely by garbage wagons from alleys, etc., and goes out of the city as garbage. Even dogs are almost never delivered, except from the city dog pound.

Only one receiving station is required, which is to be east of Broadway (that is, between Broadway and the Mississippi River), north of Dorcas street (2900 south), and south of Bremen avenue (3900 north). The station is to be located between the points named by the contractor, subject to the approval of the Board of Public Improvements. It is likely that two stations will be used, however, the distance being 68 blocks along the river.

The specifications also regulate the kind of receiving station, requiring it to have inclined approaches, to be at least 24 feet wide and at least 30 feet long, with close roof and walls. It must be kept in a sanitary condition, and open to inspection at all times by a representative of the board, or the health authorities. The contract becomes effective in six months, or as much earlier as the contractor desires, and ends December 31, 1929.

Failure to accept every animal or load of animals offered to the contractor subjects the company to a fine of $1, each hour constituting a separate offense. The same also applies to a failure to remove animals promptly after they are delivered at the stations, and for failure to keep the station or transportation cars or boats sanitary. Seven o'clock a. m. of the day following delivery to the station is the maximum time any animal is allowed to remain in the station. The president of the board is to be judge and only witness, personally or by representative, of failure to comply with the terms, and the penalties are to be taken from a $2,500 cash deposit kept at all times in the city treasury, and not permitted under the contract to remain below that sum.

The specifications specially relieve the city from legal responsibility in case of damage resulting from the operation of the plant or receiving station or stations.

The contractor must not assign or abandon the contract, on penalty of forfeiting the cash deposit and a $25,000 bond required.

The East St. Louis concern has for a long time been rendering the animals from the National Stock Yards in East St. Louis, and already has a plant. It is probable that the company will elect to begin the contract at once, instead of six months hence.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Akron Begins Oiling Streets

Akron, O.—The city is having its first experiment with oiled streets. The following streets have been oiled: Church from Broadway to High, Park from Summit to Forge, State and Center. The oil was furnished by the Standard Oil Company. It is claimed that the oil will keep the streets from becoming dusty and that one oiling a year is all that is necessary.

Gift of a Boulevard Presents Queer Paving Problem

Des Moines, Ia.—One of the most embarrassing situations that the city has had to contend with in a long time has bobbed up as the result of the gift of Polk boulevard, 100 feet wide, otherwise known as West Forty-seventh street, to the municipality several years ago. The vexing feature is not due to the gift, but to the fact that at the time it was made the donors reserved a strip twenty feet wide down the center of it for the use of the Des Moines City Railway. That fact is making it impossible to pave the street or to put in a sewer and have the property owners along each side of the street share the burden, half and half. The west half of the street was graded, and as there has been no need for a 100-foot street the other half has been left in its original condition. Now the property owners have petitioned for pavement and sewer connections, and the fact that Polk boulevard runs along the east edge of Waveland Park and to Greenwood Park makes the improvements exceptionally desirable, but it is very doubtful whether their wishes will be gratified. The city does not want to put in a pavement 100 feet wide, and it cannot pave the center of the street because the twenty-foot strip is reserved for street car tracks that have never been laid. The Legal Department has given Mr. King a verbal opinion to the effect that if the city paves the west half of the street, or that portion which is now graded, it cannot assess the property on the east side of the road for any portion of it, as the pavement does not abut the property, and there is in reality a dirt space of more than fifty feet between the pavement and the lot line on the property along the east side. The same condition is true with reference to a sewer. The sewer cannot be laid down the center of the street because that is held by the street railway company, and if it is put to one side of the center the property on the other side will not be assessable for it. Until the city settles its difficulties with reference to this street it will be impossible to get either water or gas connections made.

Patent Rights Waived in Repair Work

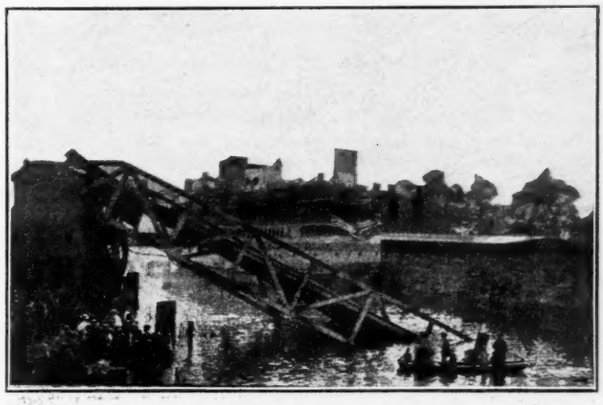
Dallas, Tex.—Street Commissioner William Doran has received from the Warren Brothers Company, of Boston, written agreement that at any time in the future the city of Dallas may by contract or by day labor repair any of the bitulithic streets in Dallas, laid by this company or its agents, and for so doing shall not be due to the company anything because of the patents it holds.

To Concentrate Repair Work in Certain Localities

Hartford, Conn.—Pursuing its new plan to accomplish the greatest amount of efficient work at the lowest cost, the street department, through Mr. Ford and Mr. Bennett, has held a conference with the several firms and individuals engaged in the curb and sidewalk-laying business to discuss this work. Six of the seven companies or individuals asked to be present attended the meeting or were represented, and all manifested a spirit of willingness to get together. Henceforth the street department will confine its orders for relaying curb and sidewalks as closely as possible to one locality at a time, so that the city's inspectors and the companies' laborers will not be subjected to long jumps from one part of the city to another. Thus, by system and co-operation, the work can be done much less expensively than heretofore.

Bridge Wrecked in Michigan City

Michigan City, Ind.—The Franklin street lift bridge was wrecked, June 24, by a collision with the steamer United States. The steamer was not in tow at the time but had just discarded the line of the tug Elphicke. The United States was backing toward the bridge, but was not intending to pass it. When it was evident that a collision would occur, the signal was given for the bridge to be raised. The stern of the boat struck the bridge near the gear end, causing the big steel girders to kink up almost in a V



LIFT BRIDGE INJURED BY STEAMSHIP

Smokestack of Tug Elphicke, sunk by bridge, shows near small rowboat.

shape. The steel parts of the bridge were bent and twisted to such an extent that when the bridge lowered itself it was too short to reach the abutment and continued downward, catching the tug Elphicke, and pinioned it on the bottom of the basin. A casual examination appears to show the cofferdam and the biggest part of the bridge in good shape. The abutments are uninjured. The gear section, in the opinion of City Engineer Harry Miles, is the only part injured. A temporary pontoon bridge will be put in place to carry the traffic. The bridge was built in 1907, at a cost of $40,000. J. H. O'Herron & Co., Chicago, were the contractors. T. F. Quilty was the contractors' engineer in charge.

Spends $130,000 for Good Roads

Lansing, Mich.—During the past fiscal year the State of Michigan has expended one-half as much money for good roads as the total amount expended in the four preceding years. The figures at the department of the Highway Commissioner show that during the fiscal year which ends July 1, the State has already spent $131,600, and this amount will probably be increased by $2,000 or $3,000 before the first of next month. The records also show that during the four years preceding July 1, the State expended $265,506. Commissioner Ely and Deputy Commissioner Rogers were in Monroe County recently, viewing a stretch of 10 miles which one of the townships in that county has decided to pave with crushed stone. Bonds have been issued for the work and it is planned to complete the new highway this summer.

Can City Lay Patented Pavement?

Spokane, Wash.—The question of the city being able to lay patented paving without making itself liable for damages for infringement was brought up again at the meeting of the City Council last week, and as a result of an extended discussion the matter was referred to Corporation Counsel F. B. Morrill and the City Engineer for an opinion.

Want Street Names on Sidewalks

Wichita, Kan.—W. R. Morrison, Superintendent of the Wichita Railroad and Light Company, has suggested a plan to place letters of tiling in the sidewalks to designate the names of the streets and avenues of this city.

Street Commissioners Inspect Roads

Hartford, Conn.—The Street Commissioners, Joseph Buths, President, with the City Engineer, Frederick L. Ford and Deputy Superintendent of Streets Charles J. Bennett, have returned to Hartford after a profitable three days' tour of inspection of roads in Massachusetts and Rhode Island. The roads inspected were for the main part of two kinds. In Massachusetts heavy asphaltic oils are used for the most part, but in Rhode Island they favor a bituminous macadam, with a tar base, similar to the binder course on asphalt pavement. The top is dressed with a painting of asphaltic oil. This road costs only about 30 cents more per square yard than the ordinary macadam laid in Hartford, which would raise the present cost of macadam from 75 to 80 cents per square yard to a trifle over $1 a yard. The Massachusetts roads, with heavy asphaltic oils, cost from 5 cents a square yard upwards more than the local macadam. The Commissioners brought home a sample of fine sand and of some of the stone used on the Massachusetts work.

Attractive Bridge for New Haven Suburb

New Haven, Conn.—This illustration gives an idea of how the new Edgewood avenue bridge will appear when completed, looking toward it from the south. Few people realize what a beautiful structure it will be and how much

Photo by Elm City Nursery Co.

NEW EDGEWOOD AVENUE BRIDGE

it will add to the attractiveness of Edgewood Park. Architecturally and from an engineering standpoint, it does great credit to the city's Engineering Department, as the design was worked out by that Department. The structure is of reenforced concrete throughout. To the Edgewood Civic Association and the West End Association credit is due. It was through their efforts largely that the project was successfully promoted. This beautiful bridge makes a very acceptable gateway to the new Edgewood section of Westville, which promises to soon be a most attractive suburb of New Haven.

Supply of Oil Runs Out

Muncie, Ind.—Owing to the supply of road oil running out, the city Street Department has been compelled to cease the work of oiling the streets, until more oil is received. Several of the city's thoroughfares have been oiled with the new road solution, which is proving very satisfactory. The oiling of the streets is done on petition received from the property holders, and the cost of the material and work is paid by the abutting property. The board has several petitions on file requesting the oiling of certain streets. A carload of the oil is expected shortly, and the work will then be resumed.

Huge Sidewalks Being Planned

Newark, N. J.—The laying of bluestone walk at the new Prudential building has been attracting considerable attention within the past few days at Broad and Bank streets. When the walk is down it will include a section which is said to be the third largest stone ever quarried for the purpose. The stretch of sidewalk on Broad and Bank streets will be made up of eight stone flags, weiging thirteen to twenty tons each. The blocks, which are nine inches thick, have an average weight of thirteen tons. The "whopper" will be laid on the Bank street corner. This will be 12x24 feet in dimensions. There are two other blocks of larger size in the country, according to the stone men, and they are in Manhattan. The stone is being delivered by A. H. Woodward & Co., and is similar to that laid in front of the old Prudential building.

State Road Officials Will Inspect Traction Equipment

Le Roy.—On June 30 about 200 men interested in the good-roads question will come to Le Roy and inspect the new road outfit consisting of an engine and three cars, recently bought by the town. The work being done will also be inspected. The party will include Chairman S. P. Hooker, of Le Roy, of the State Highway Commission, and Commissioners Earl, Allen, Lyon and Bishop, six division engineers, six division superintendents and nine division surveyors. It is expected that the counties of the state will each be represented by a county superintendent, the chairman of the board of supervisors and the chairman of the county good-roads committees and official of the State Grange.

New Speedway in Indiana City

Muncie, Ind.—The improvement of South Walnut street with brick, from Willard street to the Center township line, which was begun last summer, will in all probability be completed this week by Contractor John Gubbins, the improvement of which came under the several improvements ordered by the Commissioners under the three-mile road law. The new road, like the several other brick roads recently constructed, will furnish a splendid drive for autoists, as Walnut street will then be paved from the township line on the south to about two miles north of the city, making in all a driveway of more than four miles long.

Bitulithic Paving Satisfactory in St. Louis

Pueblo, Col.—While in Pueblo recently James J. Jennings, Engineer of Construction for the City of St. Louis, upon learning that bitulithic paving is to be laid in the new Court street and Grand avenue paving district, gave out the following statement with reference to the manner in which bitulithic paving has been received in St. Louis: "To sum up our experience with bitulithic in general, and in St. Louis in particular, we find it is the best street paving we have, equally as good for driving as for heavy teaming, has a handsome appearance and is less noisy than other pavements, and horses will not slip upon it in any kind of weather." The bitulithic paving which has been laid in Pueblo during the past five or six years has recently been examined and found to be in good condition, thus certifying to the experience of other cities in the use of this material for all-around paving purposes.

No Payment Till Work Is Finished

Portland, Ore.—Mayor Simon has called a halt to the practice of the City Council passing assessment ordinances for street improvements before the work on the streets is finished by the contractor and finally accepted by the City Engineer. He declared that the work on the street was not finished and that the assessment ordinance should not be passed until the street was finally accepted. Councilman Amand declared that the work would be completed the following day, and that the contractor was entitled to his money instead of having nearly $100,000 withheld from him on which he was paying heavy interest. Mayor Simon said that he had noticed that some work on a street in the vicinity of his home had not been properly performed, and he called the attention of the City Engineer to the matter. He forcibly expressed himself as opposed to passing assessment ordinances for any improvements which were in an incompleted stage.

Oil Beneficial; Private Contracts

Shelbyville, Ind.—The Street Sprinkling Association here found oil so beneficial for street sprinkling last summer that it is now taking private contracts for the sprinkling of streets in front of many properties.

City Sued to Annual Million-Dollar Paving Contracts

Shreveport, La.—Suit was filed last week by J. W. Bell, et al., against the city of Shreveport to annul the contracts made with three paving concerns recently awarded work in this city, amounting to nearly $1,000,000. The petition alleges that the city had no right to barter its bonds for paving instead of selling the bonds for cash and at not less than par. It is also alleged that extravagance was permitted in not selecting the lowest bids for the work. Three different kinds of paving are to be put down, bitulithic, Filbertine and wood blocks.

SEWERAGE AND SANITATION

Common Drinking Cups Abolished After October

Boston, Mass.—At the last session of the Legislature a law was passed restricting the use of common drinking cups in public place, vehicles or buildings. This law becomes operative Oct. 1, 1910. As a result of the law agents of sanitary fountains are going all over the State introducing their devices. The so-called sanitary devices are all founded on the same general principle of a stream of water bubbling up from a conical spout, so that the lips of the drinker do not come in contact with the metal, or if they do, the water flowing over the same prevents contamination from any previous drinker. The act provides that "In order to prevent the spread of communicable diseases, the State Board of Health is authorized to prohibit in such public places, vehicles or buildings, as it may designate, the providing of a common drinking cup, and the board may establish rules and regulations for this purpose.

Public Drinking Cup to Be Abolished in Iowa

Des Moines, Ia.—The abolishment of the public drinking cup in railroad stations, trains, schools and public buildings will be one of the main actions of the State Board of Public Health at their annual meeting in Des Moines, July 15. This statement was made by Dr. A. P. Hanchett, President of the Board, and follows the widespread agitation which is being waged throughout the country against this type of drinking vessel. Especially stringent will be the action taken against the railroads which have disregarded the recommendations made in this regard by the Board at their meeting last year. At that time every road which crosses the State was notified to use more care in car sanitation and to provide paraffine drinking cups for their patrons. So far as can be learned not a single road has heeded the warning. In many cases sweeping the cars while en route, a practice which according to physicians, is a most reprehensible one, has been continued unabated.

Jurisdiction of Board of Health in Smoke Abatement

Elizabeth, N. J.—The Board of Health has referred to City Attorney Connolly the question of its authority to abate the soft coal smoke nuisance complained of by residents near the Pennsylvania Railroad. Last January the residents complained, and for a short time afterward there was less smoke. There was no permanent remedy. Now the citizens appear with a more detailed complaint. They have a list of 127 distinct offenses, naming the date, time, number of engine, kind of train and the direction in which it was going. What is wanted is an ordinance imposing a penalty on the railroad company for each time black smoke is emitted from an engine.

Bread Wrapping Regulation Postponed

Indianapolis, Ind.—At a special meeting of the State Board of Health, held June 2, the notice to bakers, known as order No. 7, concerning the wrapping of bread, which was to go into effect July 1, 1910, was extended to January 1, 1911. It is now the duty of all health officers to give notice within their jurisdiction of the extension of this order.

Pass Ordinance Doing Away with Pest House

Kansas City, Kan.—The City Commissioners have passed an ordinance doing away with the city pest house and eliminating the old Board of Health, which together cost the city $7,100 annually to run, and passed an ordinance providing for an executive city Department of Health, to be under the personal supervision of a graduate physician, skilled in analysis and bacteriology. The new department will be operated at a cost of $2,300 a year less than the old system. The new Department of Health is expected to benefit the city aside from the mere saving of money. The Commissioners expect to make the department more than a mere bureau of vital statistics. The Commissioner of Health will have three field men, a laboratory assistant and a clerk under his supervision. The field men will collect samples of milk, whenever impurity or disease germs are suspected. The clerk will keep all records of the department and make monthly reports to the City Commissioners and the State and National Health Authorities.

Sewers Clogged with Stones and Gravel

Erie, Pa.—The sewer inspecting force of the City Engineer's Department has been taking advantage of the dry weather to clean out a large number of sewers that have become stopped up through the thoughtlessness or carelessness of workmen from the Street Department taking the tops off the sewer catch basins in times of freshets and permitting the basins to fill with stones and gravel. City Engineer Briggs directed the workmen to use a machine that he has contrived in cleaning the 15-inch pipe sewer on East Nineteenth street, between Ash and Wayne streets. The machine consists of a strong iron bucket with adjustable top and back. It is attached to a wire cable that drives it into the mass of stones and dirt in the sewer. When withdrawn the bucket fills and forces the back up so that it can be pulled out with several hundred pounds of the filling. In this manner six or seven cubic yards of fine washed gravel were pulled out of the sewer and the pipe opened. The gravel was quickly appropriated by a builder. Upon investigation the engineers found that the gravel had come down the Wayne street hill when the heavy rain flooded the street so that the mud carried the stones along. The top of the catch basin was clogged and a pool of water formed. City Engineer Briggs said his force may have an all summer job opening the pipes to their full capacity. "When the catch basins were under full control of this department," he said, "we did not have so much trouble, but other men do not understand the proper way of handling the sewers. I have no doubt that the Street Department employees thought that the easiest way to let the water off from the streets was to open the catch basin tops and let the water rush through, but they ought never to open the tops until they clean away the accumulation of gravel and stones and they should put the tops back again promptly so that the next freshet will not fill the sewer and clog the pipes."

Two Thousand Dollars to Repair Sewer to a House

Minneapolis, Minn.—It will cost $2,000, says Carl Ilstrup, City Sewer Engineer, to repair a break in a 24-inch sewer pipe on West Lake street, where the Park Board is building a bridge. By the break city officials are forcibly reminded of the time when the City Council built a sewer more than a mile long for the Minnesota Beet Sugar Company, St. Louis Park. Seven years ago, when the Minnesota Beet Sugar Company was a large and thriving concern, and the big factory at St. Louis Park was considered a valuable asset to Minneapolis, officers of the company asked that a sewer be built out West Lake street to the city limits, so that a connecting link from the beet sugar factory could be made. The company agreed to pay for the improvement until such time as property owners made use of the sewer and paid their pro rata shares. The sewer was built. Then the beet sugar factory burned, and has never been rebuilt. The company never paid for the sewer. The old Board of Trade lost about $8,000 that was put into the sewer as an inducement to the company, while the city put in about $10,000 more. To this day only one house as far as is known is connected with the sewer.

Engineer Explains Sewer Plans

New Bedford, Mass.—City Engineer William F. Williams gave an account of the proposed intercepting sewer at a meeting of the Board of Trade. According to his estimates, the work will cost about $1,600,000. About six miles of sewer, he thinks, can be done advantageously by the city forces. The pumping station and outfall sewers will require too extensive a plant to allow the city to undertake them, and would best be let by contract.

Mayor's Veto Is Sustained

Portland, Ore.—Supporters of the proposition to permit the use of concrete sewer pipe in the construction of sewers won a decisive victory over the alleged terra cotta sewer trust at a meeting of the City Council. The veto of Mayor Simon to the ordinance prohibiting the use of the concrete material was sustained by a vote of 9 to 3. By defeating this ordinance the City Council will be in a position to order concrete sewers if such type of sewer is desired by the property owners. In view of the fact that several communities desire such sewers, a number will be ordered in the near future.

WATER SUPPLY

Committee to Report on Purchase of Water Works

Anniston, Ala.—A committee was appointed at a meeting in the Court House last week to investigate the proposed purchase of the water works by the city, which consists of W. H. Weatherly, J. C. Sproull and J. T. Gardner. Chairman Weatherly said the committee is doing its best to cover the whole range of inquiry for the benefit of the public and that they hope to be able to throw some light on the subject when the report shall have been completed.

City Emptying Lake

Battle Creek, Mich.—Lake Goguac, where the city gets its drinking water, is being lowered rapidly. Between 4,500,000 and 5,000,000 gallons are being pumped daily, while evaporation is doing the rest. The Board of Public Works will make a rule limiting the use of water for sprinkling purposes if the heat continues.

Filtered City Water Impure

Binghamton, N. Y.—Another strong argument for the immediate installation of a sewage disposal plant is found in the report of the condition of the city water made last week by State officials to the local Department of Health. The analysis discloses the presence of impurities not only in the raw water, but also in the filtered water, and while the efficiency of the filtering plant is rated as fair, it does not prevent a partial contamination of the drinking supply. In regard to the supply of river water the report says the presence of a considerable amount of organic matter in the water was plainly discernible and the bacterial count is somewhat high. In the filtered water bacilli coli communis were present in considerable quantities. The chemical analysis indicated the presence of a moderate amount of organic matter, and that the process of decomposition was not active. The bacterial count in the filtered water was moderate. This is taken to indicate that the contamination comes not so much from sewage as from barnyards and pig pens located near the river bank or so situated that the washings are drained into the river. With the establishment of a sewage disposal plant all pollution of the stream of any nature would be prohibited and the present condition would be remedied. While the filter is effective to a remarkable degree, considering the amount of water that passes through it each day, when the river water is highly polluted the danger of infecting the city water is proportionately increased and should a large fire or low water in the rivers compel the opening of the gates and the filling of city mains without first filtering the water, the health of the community would be seriously endangered.

Water Pumps Running Pumps to Capacity

Cedar Rapids, Ia.—The extremely hot weather is thoroughly noticeable at the city pumping station, for the engines are being worked to their capacity in an endeavor to supply the citizens a cooling lotion for their lawns. The big rush is between the hours of 6 and 8 o'clock in the evening, and 6 and 7 in the morning, and to supply water for all the lawns in the city is a mammoth task. For one week the reports from the pumping station showed a daily average of 2,851,070 used, while on three days about 3,500,000 were pumped per day. The following is a table showing the number of gallons pumped per day from the 12th to the 16th, together with the amount of coal required to create the necessary power to pump it:

Date.	Gallons Water.	Pounds Coal.
June 12	2,703,320	27,055
June 13	3,295,835	29,885
June 14	3,393,752	32,870
June 15	3,448,455	35,029
June 16	3,507,930	31,495

This is the latest report that has been put on record at the office, but from conditions that exist it is evident these amounts are being greatly exceeded at the present time and doubtless the daily pumpage is nearer the four million mark than three and a half. Such is the demand on the pumping station that at small fires that have existed during the last week the pressure has been so small that the firemen could not do the most effective work, and Superintendent Fox has issued an order to the effect that the fire bell shall be rung for all fires and that the citizens shut off all their sprinklers when the sound of the fire bell is heard, and keep them shut off, until the fire out ring is sounded.

Regulations for Summer Water Usage

Cincinnati, O.—General Superintendent Laidlaw has announced that the Water Works Department will strictly enforce the summer regulations regarding the use of water. The prohibitions are against sprinkling lawns or sidewalks between 8 a. m. and 5 p. m., unless the premises are on meter service; using hose without a nozzle, or with a nozzle with a water opening of more than one-eighth of an inch for washing vehicles, or one-fourth for other purposes, permitting leaks or unnecessary flow of water, the use of automatic sprinklers or a hose without a nozzle or upon fixed supports except where premises are supplied by meter, and the scrubbing of granite or asphalt or brick streets with hose except where there is meter service. The daily pumpage of the water works is in excess of 55,000,000 gallons of water, and the pumpage record was smashed Monday when 55,705,000 gallons were pumped in twenty-four hours. An extra engine was started last week to supply the Mount Auburn tanks during the rush hours of the day, and has entirely eliminated the low pressure complained of by some of the hilltop residents supplied by these tanks.

Water War of Suburbanites

Elkins Park, Pa.—Evidence of the greed of the Springfield Consolidated Water Company, and a declaration that the company at one time refused, even if compensated, to place an extra fire plug near an institution in which a fire would have endangered the lives of many young women, simply because it was too expensive to lay extra piping, were features of an indignation meeting held at Elkins Park, a Philadelphia suburb, last week, in protests against the proposed increase of water rates. The meeting attracted several hundred prominent men from Melrose Park, Elkins Park, Ogontz, Ashbourne, LaMott and other York Road suburbs, which are directly affected as part of the 73 communities and 90,000 people interested. It was determined to fight the company to a finish, and a committee was formed to co-operate with the executive committee now working with George Wharton Pepper as chief counsel. The sentiment expressed was: "Do not sign any contract or anything, and take your chance of the company cutting off the water supply, for it would hardly dare to endanger the general health of the community by declining to serve water." Chas. Bond was selected as secretary, with Samuel Magargal as permanent chairman, while B. F. Jones will be treasurer of the fund to be raised.

Waste of Water Shows a Decrease

Kalamazoo, Mich.—"The recent investigations by the Water Committee of the City Council have made an appreciable difference in the amount of water drawn from the city mains," said W. F. Read, Superintendent of the Water Works. "I do not mean to say that all the misuse of water reported to the Council has been stopped, but some of it has. When meters are placed on all service pipes I believe there will be a material difference in the amount of work the big pumps at the station will be required to do. The past few days, which have been excessively hot, when a large amount of lawn and street sprinkling has been done, have lowered the water in the city wells to an alarming extent. The gauge to-day measures but four feet, and this in case of fire would soon be exhausted. Too much importance cannot be placed on a warning to people to avoid unnecessary use of water, such of leaving taps open and allowing the water to run to cool it for drinking purposes."

"Fishy" Taste in Water

Syracuse, N. Y.—Syracuse, as every year at about this time since it has received water from Skaneateles Lake via the Woodland reservoir, is complaining of "fishy" taste of city water. This year it is very "fishy." The taint has been noticed for about two weeks and according to Superintendent George H. Beebe, of the Bureau of Water, will be present for about two weeks more. It comes from algæ, a minute aquatic plant. Copper sulphate in a proportion of one part to 50,000,000 parts of water, has been used at the reservoir to destroy this plant life. Mr. Beebe believes algæ are present in Skaneateles Lake, as the water which runs through the standpipe into the mains for the use of the University Hill section has a "fishy" taste as well as that running through the reservoir.

STREET LIGHTING AND POWER

New Lights on Cape May Walk

Cape May, N. J.—Work has been begun upon the new system of lighting of the boardwalk here, and will be rapidly pushed. The new scheme provides for arches at intervals of 300 feet for the whole length of the boardwalk and between each two arches will be columns surmounted by powerful electric lamps. The arches will be highly ornamental and will contain many high-power Tungsten electric lamps, which will make the walk brilliant as well as ornament it. The walk has heretofore been lighted with arc lights placed at regular intervals.

New Lamps Make North Clark Street Bright

Chicago, Ill.—New lamps in North Clark street, between Barry avenue and Roscoe street, were lighted for the first time last week. The lamps are placed in front of the places of business of members of the North Clark Street Business Association, and will be maintained by the association. The lights are in clusters, four to a post, eighty in all being installed. In celebration of the event a tally-ho bearing a ten-foot sign, reading, "Come one, come all, and witness the beautiful illumination of North Clark street," and occupied by a band, paraded the streets of the vicinity from the time the current was turned on until late in the evening. The officers of the association are: E. A. Prechel, President; J. Hultin, Vice-President; H. Kinzelberg, Treasurer, and B. Ruben, Secretary.

Gas Troubles in Kansas

Coffeyville, Kan.—The gas problem at Coffeyville is becoming quite complicated. A few days since the Coffeyville Gas & Fuel Company served notice on the people that meters would have to be installed and that a rate of 25 cents per thousand would be charged hereafter instead of flat rates. The City Commissioners got busy and threatened to pass an ordinance fixing the price of gas at 12½ cents. The Peoples Gas Company immediately served notice it will not supply the distributing company gas at such figures.

Municipal Plant Forces Reduced Rates

Los Angeles, Cal.—The Edison Company, which furnishes electric lighting in both Los Angeles and Pasadena, complains that the recent city ordinance reducing the charge for electric lighting in Los Angeles from 9 to 7 cents per kw-hour, "results in practical confiscation of property." In reply to this the Los Angeles authorities call attention to the fact that the same company furnishes light in Pasadena, where there is competition with a municipal plant, at 4 cents per kw-hour, having reduced it to this figure from 7 cents, which was previously charged, in order to undercut the rates of the municipal plant. As the two cities are close together it would seem as though some explanation was due from the company to explain its apparent inconsistency. The Pasadena municipal plant has made money with a 5-cent rate, and on Sept. 1 will put into effect a sliding scale from 5 down to 3 cents per kw-hour.

Racine's New Lighting Contract

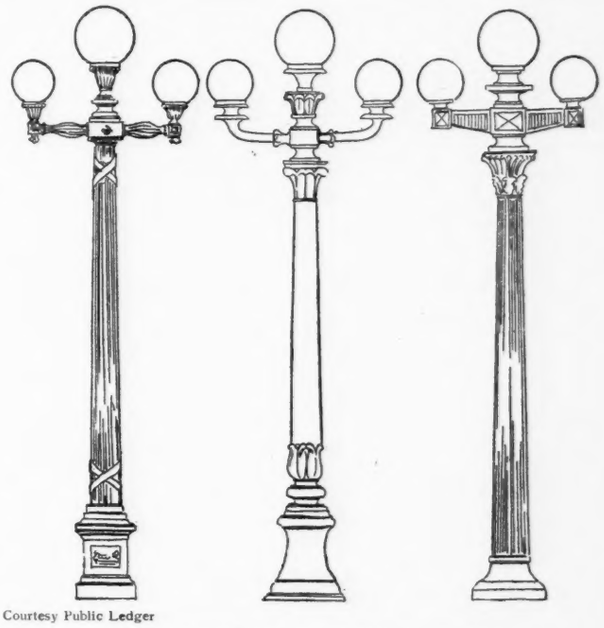
Racine, Wis.—John I. Beggs, general manager of the T. M. E. R. & L. Company, granted the city an extension of time on the present street lighting contract which expired on July 1. Mayor Horlick, City Engineer Connolly, Aldermen Kohlman, Ritter and Hanson, constituting the Lighting Committee, and John Dishington, the local superintendent, have reached a tentative agreement. The contract will be for 10 years, with a 5-year option. Should the city prefer the short time, then an additional cost of $6 a year will be added to each light for the period used. The lights are supposed to be 2,000 candle-power, but Mr. Dishington said, "there is no such thing as candle-power." He will agree only to furnish a certain kind of a current to a certain kind of a wire to a certain kind of a lamp supposed to have a certain amount of candle-power, but said it was impossible to guarantee a stipulated amount of candle-power under the lighting conditions. The contract will call for 325 arc lights for 10 years at $75 a light, amounting to $24,355 a year. Should the city take the option of 5 years, the lights will cost $81 each, a total of $26,325. The city will gain $1,970 by a 10-year contract. The new contract will call for a better lighting system and more lights. Mr. Dishington figured on a basis of 325, but the number of lights might vary some. The city now has about 310. The new contract will call for all-night lights. The city does not plan to have any lights going out at 1 o'clock hereafter. The lighting company agrees to restore the streets and keep the lines in repair and to make all repairs within 30 days where 70 per cent of the lights are out, which will be put into the contract in case of a cyclone or the city being swept by fire. The maximum and minimum heights of the arc lights will be 35 and 20 feet.

Inquiry Into Cost of Power to be Thorough

Buffalo, N. Y.—Carrying out his campaign pledge to cause an investigation into the cost of power, Mayor Louis P. Fuhrmann has directed the corporation counsel to draft a proper complaint. It is his intention to have the inquiry thorough, and several months will be spent investigating.

Memorial Lamps for Independence Square

Philadelphia, Pa.—Mayor J. E. Reyburn has given his unqualified approval to Chief McLaughlin's designs for the electrical light standards to be placed round Independence Hall and Independence Square. The Mayor chose these designs in preference to that submitted by the Committee on Historic Monuments of the Philadelphia Chapter of



Courtesy Public Ledger

TYPES OF PHILADELPHIA MEMORIAL LAMPS

the American Institute of Architects, and it is likely that the McLaughlin designs will be finally adopted. There are to be 56 standards as memorials to the signers of the Declaration of Independence, and to this end the central globe on each standard will be deeply etched with the name of one of the signers that will be plainly visible, either by day or night. An item of $60,000 provides for the standards. Mr. McLaughlin's scheme is to use all three designs in the following order, which arrangement, however, may be changed if one or other design would better serve special purposes: The central standard in the illustration printed herewith is suggested for the sidewalk electric lights in Chestnut, Fifth, Sixth and Walnut streets; the first design shown in the picture for two electric light standards on the sidewalk directly facing the entrance to Independence Hall, and the third design for two or more of the standards to be erected in the center of Independence Square. The height of each standard to the top of the central globe is 13 feet 2 inches, while the bases of the bronzed iron columns in the order displayed in the illustration, are 14 inches, 22 inches and 20 inches, while the respective diameters of the white porcelain globes are, respectively, central globes, 12 inches; side-arm globes, 9 inches. This arrangement of the lights, Mr. McLaughlin declares, will give the greatest illumination possible.

FIRE AND POLICE

Successful Fire Alarm Test

Beaver Falls, Pa.—The first test of the Gamewell fire alarm system recently installed in the town was conducted last week by John Spader, of Pittsburg, who has been in charge of the work. The test proved entirely satisfactory to Mr. Spader as well as to the firemen who were present. Twenty-six boxes have been placed at various points in the borough and alarms were sent in from each box. Of these boxes 15 belong to the borough, while the remaining 11 are private property, having been placed at various factories at the expense of the owners, who, however, are willing to allow the borough the use of them. It has been customary in such cases to have the boxes placed in the buildings, but the local factories have had them installed outside so that others can get at them and make use of them in case of fire. Mr. Spader is now ready to have the borough officials inspect the work at any time, after which it will be turned over to the city.

Firemen Quit Their Jobs

Mt. Clemens, Mich.—Following the refusal of the City Council to grant an increase of $10 a month salary to the paid members of the Fire Department, several members quit work in spite of the efforts of the Chief to get them to remain until the next council meeting. Their action leaves the force so depleted as to be unable to manage a hurry call. A meeting of the volunteer force has been called to decide whether any of its members will work under the present wage of $50 a month with chances of an increase. If none is found outsiders will be appointed for the service.

New Fire Helmet Tested

New York, N. Y.—A new fire helmet designed to protect firemen from inhaling smoke, gas and ammonia fumes was tested last week in a smoky fire in the basement of a feather warehouse occupied by Charles Forbert, at 6 Bond street. Fireman Thomas Casey, of Truck 9, who was sent into the fire with the helmet, reported that, unlike former helmets that had been tried, it had kept out the smoke without impairing his vision or hampering him by its weight. It will be tested again shortly. The helmet resembles a diver's. It fits in the form of a long leather bag over the head, and tightly around the neck. The front is of glass. In the back is a small cylinder containing water, which is made to drop in regulated quantities upon several small cubes of chemicals in a compartment below, thereby generating oxygen by much the same process as acetylene gas is made. The newly generated oxygen is blown through the helmet by means of a small tube leading from the mouth, and held between the fireman's teeth. The helmet is fitted also with a small bulb horn, like that of an automobile, sounded by hand by the firemen as a signal in case of trouble.

Too Much Glass on Streets

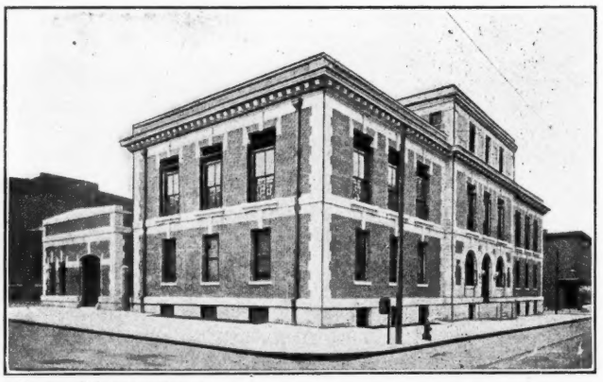
Omaha, Neb.—The Fire and Police Board has requested Chief of Police Donahue to see that the ordinance relative to the throwing of glass on the streets be strictly enforced. Commissioner Hunter, who introduced the subject, said he had seen a bottle being thrown from a car and this had led him to take action. He was in favor of a reward being offered for the detection of those who ignored the ordinance, but the board thought that for the present it would be sufficient to have the police directed to be more vigilant.

Test for Would-Be Drivers in Fire Department

Rochester, N. Y.—Candidates for positions as drivers in the Fire Department were put through the paces on the Maplewood Road running north from Driving Park avenue, near Engine 10 firehouse, last week. The commission gave 17 of the 36 candidates the practical test one morning and on the next morning the remainder went through the various tests under the eyes of Fire Chief Charles Little, Charles T. Chapin, T. Edward Freckleton and George F. Roth, all expert horsemen. Mayor Edgerton and Commissioner Owen were also interested spectators, the Mayor going to the tests early before taking up his duties in the City Hall. Quite a crowd was on hand to witness the performances. The tests included starting, driving, turning, hauling up and backing.

Improved Police Stations in Quaker City

Philadelphia, Pa.—In sharp contrast with the unsanitary and dilapidated buildings for many years occupied as police stations are the chain of eight modern structures which have been erected by this city within the last 18 months. Representing an approximate outlay of $885,000 of the city's funds, the new police stations have been adjudged as models by architects and builders, and, if the plans of the Director of Public Safety are carried out, it will not be long before every district police station in the city will be a model, causing Philadelphia to set an example for other large cities where the police stations resemble those occupied here during the last decade. The instructions to the City Architect when designing the new buildings was to adapt the architecture of the police stations to that of buildings in the direct vicinity, and the result has been that a number of handsome and varied designs were completed and the best selected therefrom. But the only effect localities had on the erection or designing of the buildings was in the



Courtesy Philadelphia Record

MODEL POLICE STATION, PHILADELPHIA

exterior, which is a small item when considering the buildings. In order to fully appreciate the new structure it is necessary to make a tour of inspection of the interior and compare it to the interior of the building previously occupied for the same purpose. The Twenty-third district station, shown herewith, has been said to be one of the handsomest police stations in the country from an architectural viewpoint. The building cost $60,902, and the land on which it is erected $25,000 additional. Extending along the west side of Nineteenth street and the west side of Oxford, the structure is in a neighborhood of large dwellings and is a fitting municipal building. The building is of brick and stone, the material used in the erection of all police stations. It is a three-story structure, commodious and well-lighted. In the rear on Oxford street the patrol station adjoins. It is a one-story brick and stone structure of the same style of architecture. In designing the latter building the architect bore in mind, as he did when designing similar structures elsewhere, that it will not be long before horses will be a minus quantity in patrol and fire service. Automobiles are rapidly taking the place of horse-drawn patrol wagons and fire engines, and for this reason the patrol house stations are really garages with all modern equipments. Each of the new stations has a large hearing room and private offices for the house sergeants. The lieutenant and special policemen also have private offices and rooms and the dormitories occupied by the policemen while on reserve duty are well equipped, and sanitary rooms having all the comforts needed. Another important improvement in the new stations is the arrangement of the cells. Many times humane societies have protested against the unsanitary condition of cells in the old stations. Now, instead of close, stuffy cells, the unfortunates who are forced to spend the night in a police station, are put in a room where they have ample room to turn around and where there is running water.

Rebuilding Fire Alarm System

York, Pa.—City Electrician Warren Fastnacht has started to rebuild the fire alarm system in the East End. Five miles of copper-covered steel wire has been secured to be used with the best of the old wires. All the fire alarm wires will be placed above the other wires.

New Auto Rules for Spokane

Spokane, Wash.—Chief of Police John Sullivan is in receipt of a set of automobile regulations recently adopted in Lansing, Mich., and conceded to be the best motor restrictions used in any city in the United States. The rules are being carefully studied by the Department head, and will be submitted to Corporation Counsel F. B. Morrill, who will draft an ordinance to apply to Spokane's motor vehicles. The ordinance will be introduced before the City Council immediately. One or two of the interesting features of the regulations is that no one under the age of 18 years is allowed to drive a machine. He must be registered and if ever convicted for reckless driving must make a report to that effect. Each and every registered driver is supplied with a badge showing him to be such. This, Chief Sullivan believes, will benefit the automobile conditions in this city

Fire Chief Fooled by Engine Whistle

Walla Walla, Wash.—Although Chief William Metz boasts an abundance of avoirdupois, unless something is done in the whistle line soon he will be a candidate for a job as living skeleton in the first circus that hits town. His troubles are many. First a fine siren was put on to announce the city's conflagrations. But this was unsatisfactory, and another was purchased, a beautifully bass-voiced brass that can be heard for miles. The O. R. & N. Company has a locomotive in the yards that has a voice exactly like the fire whistle, and Chief Metz and his faithful horse have made a score of runs in the last four days, answering the false notes of the fire whistle's double. The Chief will ask relief from the City Council.

GOVERNMENT AND FINANCE

Vacations for All Empire City and State Employees

Albany, N. Y.—Three hundred thousand city, county and State employees throughout New York are rejoicing over the signing by Governor Hughes of the bills authorizing vacations to every employee on the payrolls of the various cities, counties and other political subdivisions of the State. Laborers, as well as the heads of departments, are benefited by the bill. Until last year none of the vast number of laborers, mechanics and other artisans employed by the City of New York on a per diem basis received so much as a day's vacation. The first Hoey bill got them a week's summer leave. Governor Hughes, at the same time, appointed a committee of the heads of the various departments to investigate the subject and this committee recommended that legislation be enacted whereby the various departments would be empowered to grant vacations to all employees. The vacation bills give the "per diem" men a vacation of two weeks and other employees a vacation of such length as the heads of their departments think their duties, length of service, and other qualifications warrant.

Occupation Tax as Emergency Measure

Iola, Kan.—The City Commissioners have passed the occupation tax ordinance. It repeals the former ordinance and includes many occupations not included by the former measure. The majority of occupations are taxed at from $2 to $10, but there are some that run much higher. In behalf of the commissioners, City Clerk T. F. Ziegler has issued a statement which explains the purpose for which the ordinance was passed. The commissioners were confronted with a grave difficulty, a shortage of finances, when they went into office. Under the Council system, the money derived from the sale of gas, water and electricity was used for general expenses but the commissioners were not authorized to do this under the law. They began cutting down expenses wherever possible, but in spite of this, it was found necessary to pass some emergency act to tide the city over until the taxes came in next December. They decided that the passage of an occupation tax ordinance was the best way to meet the difficulty. All annual license taxes provided for in the ordinance are payable semi-annually, one-half being due as the ordinance goes into effect and the second half January 1st. It is the opinion of the commissioners that in all probability the amount due January 1st will not be called in as the general taxes for general expenses will then be available.

Kalamazoo to Investigate Commission Government

Kalamazoo, Mich.—Mayor Farrell has forwarded to the City Council a letter asking that the proper resolution be adopted, authorizing the appointment of a non-partisan committee for the important work of investigating government by commission and the advisability of placing Kalamazoo on such a basis. The recommendation provides for the appointment of a committee of fifty representatives of the city's interests who will form a body strictly non-partisan, to undertake to gain all the information necessary relative to the plan.

What a Utilities Board Does

Kansas City, Mo.—A public utilities commission that appears to be working all the time is an innovation at the City Hall. The public has found out there is a place to air their grievances and complaints, and is taking advantage of it. The commission has a regular place of business, with its secretary on duty all day at the City Hall, instead of once every week or two at meetings of the commission.

Here is the calendar of business presented at one afternoon's meeting of the commission:

Consideration of electric meter testing ordinance.
Hearing on electric light franchise to W. M. Hall.
Report of gas inspector on the complaint of Samuel Feller.
Attorney's report on complaint of P. A. Frederick regarding poles and wires in the street.
Attorney's report on complaint of Mr. Clifton regarding gas meter deposit.
Report of inspectors on Swope Park car line on the complaint of J. E. Blackmore.
Attorney's report on Kansas City Electric Light Company's franchise. Report of inspector on discrimination in electric light charges.

Submit Commission's Plan

Marshalltown, Ia.—The Special Committee of the City Council appointed to canvass the petition filed recently asking that the voters be given a chance at a special election to indicate if they wanted the commission plan of city government, has reported favorably on the petition. A date for the election will be fixed in a short time.

Unionism in Socialist Milwaukee

Milwaukee, Wis.—The Socialist City Government proposes to establish a city printing plant as a measure of economy. The idea comes from the group of union printers in the administration, of whom there are no less than seven now holding offices about the City Hall. There is also a plan on foot to unionize the Street Cleaning Department. This does not come directly from the city administration, but was suggested in the Federated Trades Council meeting, and the new Public Works Commissioner declared that he would make no objection.

Canadians Like Commission Idea

Montreal, Canada.—Municipal government by commission is being considered with favor in different parts of Canada. One city has a system in operation which is closely modeled on the Des Moines plan, while Montreal, the commercial metropolis of the Dominion, has at last got rid of its antiquated Aldermanic government and is having its affairs administered by a Board of Control which has already effected reforms that were formerly thought impossible. Now, Charlottetown, the capital of Prince Edward Island, is considering government by commission, and its leading men are casting their eyes in the direction of Massachusetts in search of models. It is probable that a party of city officials and interested citizens will shortly visit Boston, Lynn, Haverhill and other cities.

St. Paul Business System Being Investigated

St. Paul, Minn.—The Municipal Research Commission, appointed for the purpose of investigating St. Paul's system of doing business, especially the methods employed by the several city boards and the conditions under which city contracts are awarded, is making progress slowly in the collection of funds for the prosecution of its work. Chairman Herzog, of the commission, said that $700 of the $5,000 deemed necessary is still uncollected, and that the commission will not undertake its work until that is forthcoming. It is probable that a meeting of the commission will be held within a few days for the purpose of discussing ways and means for closing up the fund as rapidly as possible.

STREET CLEANING AND REFUSE DISPOSAL

Women Tell How to Clean Streets

Chicago, Ill.—Representatives from improvement and woman's clubs told Superintendent of Streets Fowler what they thought should be done at once to put the streets and alleys in good condition. They talked, one delegation after another, from 10 o'clock in the morning until after 4 o'clock in the afternoon. It is the first time in recent years, perhaps ever, that the improvement associations have been encouraged to make complaints, suggestions and requests. Mr. Fowler announced at the close of the addresses that he would at once install a complaint bureau to receive complaints. Mr. Fowler said that he would have his system show if possible the character of the municipal service and the efficiency of the employees. For example, he desires that the records be kept so that they will show in what line of service the largest percentage of complaints is received. More than 500 specific complaints were made. These suggested definite remedies for particular conditions at individual spots. Among the principal suggestions were the following:

Keep the gutter and catch basins open.
Use more crushed stone for the repair of streets.
Lower manholes on macadam streets to the level of the pavement.
Place brick crossings at street intersections of macadam streets.
Pave all alleys within five years after parallel streets on both sides have been paved.
Sprinkling to be done exclusively by the city.
Place gates at all railroad street grades.
Adopt the block system of cleaning on streets in better wards.
Erect street signs at all intersections of the populated districts of the city.
Remove garbage at regular times.
Use garbage wagons for no other purpose.
Place oil on macadam streets.
Permit use of school buildings free of charge for improvement club meetings.

Would Flushing Injure Streets?

Decatur, Ill.—On the eve of the city purchasing a flushing machine with which it is hoped to keep the city's paved thoroughfares clean, F. L. Campbell, Superintendent of this division of the Vandalla lines, and a man prominent in the city's business affairs, suggests that the flusher may prove a menace to the city, in that it may destroy the surface of the brick streets. Mr. Campbell for many years lived in Terre Haute, Ind., and states that in that city two machines were purchased several years ago and after several months of operation were relegated to the stable, because of their effect on the surface of the brick streets. He stated that in Terre Haute, the bricks are laid on a concrete base, and in the most cases sand filling is used. The force of the water removed the filling, leaving the corners of the bricks exposed. Heavy teams gradually chipped off the sharp edges, the constant application of the flusher removing the loosened particles, until the brick became disfigured and loosened and consequently the entire surface was ruined. Hence the flushers were abandoned. Decatur's brick streets are finished with either neat cement grout, or asphalt filling, and upon this surface the highest pressure has but little effect.

Garbage Collection Plan Successful

Elgin, Ill.—"The free collection of garbage instituted by the city of Elgin a few weeks ago is working out most successfully," said Health Officer Adolf Fischer.

"When the system was first started I used to receive on the average of a score of complaints daily; now I do not receive more than one a week. This one is generally from some citizen who has just purchased a garbage can and the collector has overlooked it. I do not consider it necessary that the city of Elgin have a $10,000 incinerator. I believe that the garbage is being disposed of in a more satisfactory manner now than it would be by having it burned up and is a less expense to the city. Since the garbage system was inaugurated citizens have taken more pride in the general appearance of their premises and are keeping their yards in better condition than ever. This, of course, is lessening the work of the Health Department to a certain extent. The scavenger tells me that he is now collecting more than double the amount of garbage that he did when he first started. I think that the only change that the city will need next year in connection with the garbage system will be the extension of the collection period for about a month longer over that of this year." When a complaint is made to the Health Department that a garbage can has been overlooked the collector is notified and he calls for it that same day.

Tightly Closed Garbage Cans for Elkhart

Elkhart, Ind.—The new garbage ordinance, which has been in effect since publication June 13, is very strict in regard to the character of the vessels in which garbage is kept and in regulating the disposition of the contents. All garbage must be kept in tightly closed vessels and emptied frequently. When the sanitary officer directs the vessels must be disinfected. The ordinance provides for the removal of the garbage, and prohibits a number of offenses against general cleanliness and sanitation. The chief of the garbage department is Robert Cook.

Separate Mains for Sprinkling

Hartford, Conn.—General John P. Harbison, William Angus, of the Landlords & Taxpayers' Association; L. W. Barker, and Charles Pullar, were the only citizens seemingly interested enough in the street sprinkling question to appear at a public hearing by the Council Committee, to express their views. All four of them, however, agreed that the sprinkling should be done differently, but on some other details they were not in accord. General Harbison thought all streets should be sprinkled, and a tax levied with the general taxes to pay for it. Mr. Angus held a very similar view. Assistant City Engineer Roscoe N. Clark said he thought it would be a good thing for all the macadam roads to be sprinkled, but as to the method of paying for it he wasn't prepared to discuss it. Mr. Barker wanted a per front foot assessment, and Charles Pullar said if the present methods continued, there would be a water famine before the end of the year. General Harbison then suggested that if the Board of Water Commissioners could be induced to lay a separate system of mains from the river to the manufacturing district, and for use in street sprinkling, the problem would be solved, and Hartford wouldn't have to go out and buy up the rest of the State for reservoir room for drinking water.

Mayor Asks Aid in Clean Street Crusade

Newark, N. J.—Mayor Haussling has issued a proclamation drawing attention of the people to existing ordinances designed to keep the streets and sidewalks free from litter and the city generally in a clean and sanitary condition. The Executive's action is in accord with the policy to enlist the public's aid in enforcing ordinances. The important features of the various ordinances are set forth in detail. The "Dont's" include placing obstructions of any kind on the streets without permission of the General Superintendent of Works; driving overloaded dirt or refuse wagons; dumping of dirt or rubbish on the streets or sidewalks; throwing of fruit skins or the like on the sidewalks; sweeping stores or dwellings on to the sidewalks; ignoring notices to fill sunken land; the use of garbage or similar material to fill such land; allowing sidewalks to remain in a dirty condition; accumulation of garbage around any building; spitting on the sidewalks, public buildings or conveyances. In conclusion, the Mayor says:

The season is already here when decay under the hot rays of the sun is rapid, and disease germs multiply indefinitely in number and potency. For our own sakes as well as for the sake of our neighbors, we should do all within our power to remove causes of disease. Proper pride, as well as good business judgment, should cause us to refrain from littering the public thoroughfares, for the cleaning of which we pay many thousands of dollars yearly. I, therefore, make an earnest appeal to all residents of Newark to obey the foregoing regulations in letter and in spirit, to the end that the attractiveness of the city may be enhanced, and the life of the citizens may be prolonged.

Rochester's Streets Not Covered with Dust

Rochester, N. Y.—The item appearing in these columns in the issue of June 15, stating that the streets of Rochester were covered with dust "inches thick," although sent to us from that city, should have been credited (or discredited) to one of the near-by towns. We are assured by a Rochester official that the description does not apply to that city.

RAPID TRANSIT

Milwaukee Mayor After Car Company

Milwaukee, Wis.—Mayor Emil Seidel says the Milwaukee Electric Railway and Light Company owes the city $72,000 in back licenses for the cars which it operates, and that he intends to collect the money. To start the ball rolling properly, the Mayor has sworn out a warrant for John I. Beggs, President of the company, on the charge that he is evading payment of the license. A city ordinance provides that the company shall pay into the City Treasury $15 annually for each car it operates. Mr. Beggs says the ordinance was repealed years ago, but Mayor Seidel claims it still is in force.

Pittsburg to Oust Railways from Streets

Pittsburg, Pa.—Mayor Magee has signed a resolution adopted by Councils last week authorizing him to petition the Attorney-General to take action against the underlying companies of the Pittsburg Railways Company to revoke their charters. The city Law Department will proceed as rapidly as possible to attack the company in the courts, basing the action on alleged violations of the ordinances which gave them the franchises. The company will be sued for all the money the city has spent in paving and keeping in repair the streets used by the companies, which, it is contended, should have attended to this work under the ordinances which allow them to operate. Several charters provide for the payment of a percentage of the net earnings to the city. The total of the amounts the city will demand from the company approximates several million dollars. City Controller E. S. Morrow is preparing a schedule of the money due the city. The railways company will make the defence that the city is in part responsible for the failure of the traction company to live up to its contracts. It will be contended that the city failed to enforce its ordinances. Dividends out of the earnings of the lines are paid on the stock of all the underlying original companies; then to the Pittsburg Railways Company, and also to the Philadelphia Company. It is the purpose of Mayor Magee and Councils to fight the traction problem to a finish and, if possible, force the Pittsburg Railways Company into a receivership, which would give back to the city its streets, so that other companies might be enabled to do business under new conditions. It is also planned if this can be done to provide for the building of subways.

San Francisco to Own Trolleys

San Francisco, Cal.—By a decision of the State Supreme Court, San Francisco's labor union administration will have an opportunity to build and operate a municipal street railroad on Geary street. The Supervisors have advertised for bids on the first lot of bonds, and there is nothing now in the way of the city commencing work upon its line from the ferry to the Beach over the Geary street route.

MISCELLANEOUS

To Prevent Runaways

Marion, Ind.—The Police Department will endeavor to prevent further runaways in Marion by enforcing the city ordinance requiring horses left standing in the streets to be hitched before their owners leave them. In the past few weeks a number of horses attached to delivery wagons have run away and caused serious damage because their owners were careless in permitting them to stand without hitching. Police Sergeant Golding in one day called by 'phone a number of the drivers against whom complaints have been lodged, and notified them the ordinance is to be strictly enforced in the future.

Autos Must Not Smoke in New York

New York, N. Y.—Smoking autos are placed under the ban by an ordinance which took effect July 1, and the National Highways Protective Association, which was active in obtaining an amendment to the Sanitary Code covering the automobile smoke nuisance, sent out warnings two weeks ago, and now has on duty a lot of special police to assist the regular force in stopping automobiles that offend by trailing a streak of smoke behind. By careful discrimination on the part of the police and a liberal number of arrests for the past week, or two, the new law will end the smoke nuisance, in the opinion of its backers. Commissioner Lederle, of the Health Department, has charge of the watchers. It is his plan to allow offenders to go with a warning at first and gradually increase the number of arrests as the penalties as old offenders begin to appear in the station house.

Sea Level Gauges Installed in Pittsburg

Pittsburg, Pa.—Engineers, working under the direction of the Committee of Flood Prevention of the Pittsburg Flood Commission, have begun placing bronze tablets, technically known as bench-marks, throughout the downtown section of the city. The tablets will show accurately the elevation of the points marked above sea-level, which will in future be a great convenience to persons having to erect buildings, and for some other purposes. The placing of the tablets is the first important practical service rendered to the city by the Flood Commission, and each tablet will be marked with its name. Emil Swenssen is chairman of the committee having the matter in charge. The bench-marks will be of great value to the whole community, especially to the municipal departments, engineers, railroad companies and the manufacturing and construction interests. The first was placed at the Keenan Building, on the granite ledge, just to the right of the Liberty avenue entrance. The elevation here above the mean tide at Sandy Hook is 734.9 feet. The elevation at the Union Station, where another bench was placed, is 741.2 feet. The elevations when marked upon the surface of the benches will be given with great accuracy, being carried out to thousandths of a foot. There will be several dozens of them scattered throughout the city, so that it will be possible when buildings are to be constructed to determine the elevation of foundations to within a very small fraction of an inch by running a line for a distance of only a few blocks. It is only within a few years that this has been made possible in Pittsburg by the carrying across the country from Sandy Hook of a line whose marked elevation could be depended upon as absolutely accurate.

BENCH MARK

City Officials Visit Their Own Improvements

Syracuse, N. Y.—Commisisoner of Public Works F. M. Westcott led sixty city officers, including Mayor Edward Schoeneck, ex-Mayor Alan C. Fobes, and City Engineer Henry C. Allen, on a 36-mile automobile ride about the city on June 28, to show them the intercepting sewer and the new standpipe, the new public bath, the parks and playgrounds, the City Hospital and several new schools. It was an exhibit of municipal efficiency and of municipal advance. The streets are better paved and cleaner than they used to be. The parks are better kept. In every line of enterprise the city is keeping step with the best sentiment of American city government. While the exhibit was gratifying, it nevertheless pointed out new civic duties. The Frazer School playground, resort of the children of a congested neighborhood, is proof by its popularity of the need of other school playgrounds. The Leavenworth avenue pool, full of small boys, is proof by its popularity of the need of other baths in the congested sections of the city.

St. Petersburg Improving Its Harbor

St. Petersburg, Fla.—Water front improvement plans for the improvement of St. Petersburg harbor, drafted by City Engineer Spencer and forwarded to the War Department at Washington, have been accepted by the Government. For several weeks the work has been going on along the bay-front under an old permit to better the channel conditions. Since the acceptance of the new plans the work may proceed under the conditions of those plans. The work involves the construction of a bulkhead and reclamation of land behind the same, the excavation of channels and anchorage basins, and the construction of wharves, etc. The United States Engineer will be constantly on the ground and will see that the work is carried out according to the specifications of the plans accepted by the Government. The work is now proceeding very rapidly. The dredge is doing finely, throwing out great quantities of sand.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Dock Privileges—License—Revocation

In re Piers Old Nos. 16 and 17, East River, in City of New York.—Laws 1875, chapter 249, section 1, provides that owners or lessees of any pier used to receive and discharge cargoes may erect sheds thereon, on obtaining from the Department of Docks a license subject to the restrictions contained therein, etc. Greater New York Charter (Laws 1901, chapter 466), section 844, provides that, when such license has been granted and has been acted upon, it shall not be revoked by the Dock Commissioner without the consent in writing of the Mayor and of the Commissioners of the Sinking Fund after due hearing of such licensee. Held, that where the lessee of a pier had obtained two licenses to erect sheds thereon, the only way in which the permits could be revoked is prescribed by section 844, and, where the only action taken by the Commissioner was a notice of revocation of the licenses without the written consents of the Mayor and the Commissioners of the Sinking Fund, the licenses were not revoked, so that, where the city took possession of the pier and sheds, the latter remained lawful structures erected and maintained under a valid and unrevoked permit, and the owner was entitled to compensation for their taking.—Supreme Court of New York, 122 N. Y. S., 1034.

Street Improvements—Assessment—Review—Remedy

New York Central & Hudson River Railroad Company et al. vs. City of Buffalo.—Under Buffalo City Charter, providing for assessment of benefits for local improvements, authorizing certiorari to review an assessment, and declaring that, in an action to determine the legality of an assessment, no relief shall be granted for defects which could have been corrected on certiorari; and whether a given parcel is benefited, as well as the extent of the benefit, must be determined by the Board of Assessors as matters of fact, and certiorari is the only proper remedy to review errors in either case.—Supreme Court of New York, 122 N. Y. S., 1058.

Highway Construction—Impassable Road

Commissioners of Anne Arundel County vs. Watts.—A contractor, having no access by a public highway to transport the necessary material except over a county public road rendered impassable by the failure of the county to keep a bridge in proper repair, sustains special damage by his inability to transport the material within the time required by the contract, and necessitating the making of arrangements with a railroad to haul the material by hand cars between the times of regular trains, so that he may sue the county therefor.—Court of Appeals of Maryland, 76 A. R., 82.

Right of Action for Injuries

Town of Knox vs. Golding et al.—A municipality having notice of a defect in its street or sidewalk in time to remedy it is liable for an injury which occurs by reason thereof.—Appellate Court of Indiana, 91 N. E. R., 857.

Licenses—Occupation Tax—Power of City

Rome Coca-Cola Bottling Company vs. Mayor, etc., of Town of Calhoun et al.—The provisions made by way of amendment to the charter of a town, that it should have power and authority to "levy and collect a tax or license fee upon all * * * itinerant venders of articles, wares, soft drinks, or merchandise of any character," authorized the passage by the municipal authorities of an ordinance imposing a tax or license fee upon "every traveling or itinerant vender of articles, wares, soft drinks, except such as are excepted by the laws of Georgia."—Supreme Court of Georgia, 67 S. E. R., 1033.

Defective Sidewalk—Contributory Negligence

Howard vs. City of New Madrid.—It is not negligence for a person to use a sidewalk which he knows to be in bad repair, unless it is so unsafe that no person of ordinary prudence would attempt to walk over it.—St. Louis (Mo.) Court of Appeals, 127 S. W. R., 630.

Paving Assessments—Constitutionality

Weise vs. City of Green Bay.—Statute 1898, as amended by Laws 1909, provides that no property fronting on any street shall be exempt from any assessment for a permanent pavement having a concrete foundation until such property shall have paid in the aggregate in assessments for street pavements the sum of $2.50 per square yard in cities of the first class, and $2 in cities of the second class, etc., and that, where any property has paid less, it shall be liable for the difference. Held, that though a city of the second class may build on one street a permanent pavement with a concrete foundation, and on another street a similar pavement with a stone foundation, and assess the entire cost against adjacent lots on one street and only 90 cents on the other, though the lots on both streets have been assessed $1.10 per square yard for wooden block pavements previously laid, this does not render the law unconstitutional as an unlawful delegation of power to the city to exempt property from taxation, the classification of the pavement on a concrete foundation being a valid classification when made because of the relative permanency of the pavement.—Supreme Court of Wisconsin, 126 N. W. R., 681.

City Annexation—Remedy for Wrong

Lutient et al. vs. City of Kewaunee et al.—The remedy of owners of land in territory wrongfully annexed by a city is by a suit in equity to restrain the officers of the city from acting under the ordinance annexing the territory claimed to be invalid for failure to comply with the statutes regulating the annexation of territory, which provide for a petition for annexation signed by a majority of the electors and the owners of a third of the taxable property in the territory sought to be annexed, for certiorari does not reach the question of the number of electors and landowners in the annexed territory, and quo warranto is inappropriate.—Supreme Court of Wisconsin, 126 N. W. R., 662.

Highways—Control—Vacation

Lowe vs. East Sioux Falls Quarry Co.—Under Pol. Code, declaring all section lines within the State to be "public highways" as far as practicable, a section line road becomes an established public highway, without any action or procedure on the part of the county, which no one has the right to obstruct. A highway, having been once lawfully established, can only be vacated or abandoned by some lawful method. A part of a section line highway not within the boundaries of a city is not within its jurisdiction, and can only be vacated by the County Commissioners in accordance with Pol. Code. That a more convenient road has been used is not sufficient to show an abandonment of an established highway.—Supreme Court of South Dakota, 126 N. W. R., 609.

Contract for Building Jail—Subsequent Statute

Haskett vs. Tyrrell County et al.—County Commissioners on February 1, 1909, passed a resolution declaring it necessary to build a jail, and on the following day entered into a contract for the construction of the jail in which it agreed to issue bonds to the contractor, and on March 1, 1909, the contractor delivered a written order to the Commissioners directing them to deliver the bonds to a third person. Held that, while it was within the power of the General Assembly to restrict County Commissioners in the incurring of debts, such contract was not invalidated by an act ratified on March 2, 1909, which prohibited such county from contracting for any public building without first advertising for bids and annulling the contract of February 2, 1909, since the bonds issued in pursuance of such contract were, in effect, delivered on March 1. Supreme Court of North Carolina, 68 S. E. R., 202.

Obstruction in Street—Notice

Burditt vs. Town of Winchester.—Where employees of a town left a wooden horse at night in a main thoroughfare, lighted by electricity and occupied by a street railway, it could not be held as a matter of law that the Selectmen of the town, or the superintendent in charge of the work, should not, in the exercise of reasonable care, have known of the defect in time to have avoided injury to a bicyclist, who ran into the obstruction.—Supreme Judicial Court of Massachusetts, 91 N. E. R., 880.

NEWS OF THE SOCIETIES

New England Conference on Street Cleaning.—About forty city officials, Superintendents of Street Cleaning Departments and social workers, met at Manning Hall, Brown University, Providence, R. I., June 29, for what was perhaps the first conference of its kind ever held on street cleaning. The conference was held under the auspices of the Bureau of Social Research of Providence, and at the evening session it was voted by the delegates to hold another similar meeting. Carol Aronovici was appointed chairman of a committee to consider plans for drafting a constitution and to decide upon the time and place of the gathering for another year. At the opening of the morning session the delegates were welcomed by Mayor Henry Fletcher, who outlined briefly the street conditions of Providence. In the afternoon papers were read by Dr. George A. Soper, Prof. F. P. Gorham and Carol Aronovici, followed by a demonstration of modern street cleaning machinery on Waterman street. Henry A. Barker presided at the meeting. Two lectures, illustrated with lantern slides, were given at the evening session, one by Edward D. Very, on "How New York Is Cleaned," and another by J. T. Fetherston, on "The Training of a Street Superintendent and His Work." Wallace Hatch, Secretary of the Anti-Tuberculosis League of Rhode Island, read a paper on the relation of the disease to clean streets. In connection with his lecture Mr. Very, who came in the place of Commissioner William H. Edwards, of the New York Street Cleaning Department, showed views of the different methods employed in cleaning the streets of that city. He spoke of the men, garbed in white suits and helmets, who swept the streets, and of the large cans placed about the streets for the collection of rubbish.

In the address of J. T. Fetherston, of New York, the training which a Street Superintendent should pass through was pointed out. The speaker developed the idea that much attention should be paid to the management of men and machines, to the sanitary aspect of the business, to the organization of working forces and to the keeping of cost charts. The pictures shown in connection with this paper were largely of filthy streets, which form problems for the Superintendents. The different methods, correct and incorrect, of disposing of garbage and rubbish, were also discussed and illustrated. Street cleaning is primarily a sanitary work, the speaker said, and the cost of accomplishing this work is a secondary matter.

In his address on tuberculosis and clean streets, Wallace Hatch first made a plea for better machinery in handling the problem and then showed the relation of the disease to clean streets. He said in part:

"Just where does the tuberculosis problem touch the street cleaning problem? Even though we believe, as many people do, that the dangerous bacteria in street dust have been largely destroyed by air and sunlight, we must admit that the excessive amount of dust swept up by many of our modern and insane methods of street cleaning are irritating, and thus dangerous to a large number of people. If we are to prevent the unnecessarily high death rate from the various dust-borne diseases, we must make provision either to isolate all people suffering from diseases which may be spread by dust or make the activities of our street cleaning and other city departments thoroughly efficient in handling the dust nuisance."

Dr. Soper's paper, read at the afternoon meeting, was on "Modern Methods of Street Cleaning," and he discussed conditions which obtain, not in New York, but in the comparatively small cities of the country. He said that one of the first considerations in the matter of street cleaning was cost. "All sanitary work," he said, "is expensive, but when judged by results obtained they are good movements. It is impossible to tell what the cost of street cleaning should be on account of the difference of methods employed. The speaker developed the idea that it is wrong to seek appropriations from politicians for street cleaning, since political bosses always want so much in return for favors. Men, young, strong and capable should be employed, and not the inmates of prisons and poorhouses. Dr. Soper spoke of the different methods of collecting refuse and also of its final disposition, such as incineration and compositing, the latter method being by allowing the waste materials to rot. In conclusion he said that the idea of profit in collecting and disposing of refuse ought to be made secondary to other considerations.

"Street dust and bacteria are inseparable," said Professor Gorham in his paper read before the delegates to the conference. "But contrary to the common notion," he continued, "the word bacteria does not always spell danger, for the harmless bacteria far outnumber the harmful." Professor Gorham showed that the chief danger in the dust of the streets and of the air was not that it acted as a carrier of disease-breeding germs, but that it opened the way in the body for the entrance of these germs by inflaming the mucous membrane. He said that such dust as comes from flour mills and stone crushers was especially dangerous to this membrane.

Another danger which Professor Gorham mentioned as coming from street dust was its accumulation on foods displayed outdoors on carts and in open windows of stores. He thought that it was a great evil and menace to health to allow street washings to flow into waters used for shellfish culture.

In speaking of the preparation of an efficient street cleaning budget, Carol Aronovici said that an efficient budget was the large part of the secret of good government. It was voted at the afternoon session to continue the conference another year, the place and time of meeting to be decided upon later. At the close of the meeting a demonstration of modern methods of cleaning streets was given on Waterman street, the machine used being a street washer with a rubber brush attached.

Mayor Fletcher said in part in welcoming the delegates in the morning: "Laws and ordinances are necessary and should be enforced, but there is something which is far more effective than these restrictions in promoting the best interests of our city as regards its highways, and that is a spirit of voluntary and helpful co-operation on the part of our citizens with those whose duty it is to maintain our thoroughfares in a condition of cleanliness and beauty. In the city of Providence we have about 250 miles of accepted streets, which cost the city more than $337,000 annually for their maintenance. The greater portion of these are in excellent condition, and many are lined with stately trees whose grateful shade affords a welcome protection from the rays of a summer sun, and whose stalwart trunks and ever-arching branches impart a beauty and charm impossible to be had without them."

Commissioner Walter E. Ranger was the first speaker of the morning session, following Mayor Fletcher. He sought to show the relation between the school children and clean streets, and said in part: "I believe that the school children have an interest in clean streets. When we remember that 30,000 children use the streets of the city in going to school daily, we realize that there is a close relationship between the children and the streets. I question whether a stronger appeal can be made for clean streets than in the name of the 30,000 school children of Providence. We realize that health and beauty are conditions of good education. If in the country they associate good roads with good education, I think we are not far from wrong in doing the same in the city. If a child is brought up in an untidy, shadeless street, he easily becomes careless and untidy. On the other hand, if a child is reared in a beautiful street he takes on cleanliness and beauty. To look out on beauty in nature anywhere is one of the most potent influences in life. Good citizenship and civic betterment is the keynote of the schools of to-day. "Cleaner streets mean better schools, and better schools mean civic patriotism. Children will keep the streets clean when their elders perform this task. I am glad to assure you that in the schools throughout this State there is an intense interest on the part of the school children for the better things of life."

The next speaker, E. T. Hartman, Secretary of the Massachusetts Civic League, addressed the conference on the subject of "The Social Significance of Clean Streets." In part, he spoke as follows:

In considering the social aspects of clean streets, we must face certain issues, and the first of these is that the outward aspect of every city is the only badge of the public spirit of the people of that city. If the city is dirty and slovenly, the people are dirty and slovenly. The people make the city; the city does not make the people.

"If we want our cities to reach out to people, let's have them voice the best that is in us. The streets are the hallways of the community home. You in Providence have in the past looked after your parks and done excellent work in this direction. Our streets we use every day, and they indicate the kind of life we are living. Considering the social relation between the people and the streets, we know that the poor live in the streets, for their homes are not fit to live in during most seasons. As they say in Boston: 'The parks are for æsthetic purposes, not for use by the children.' If we had clean homes and streets, we could do without our parks and driveways, for the rich do not need them, although they use them for automobile and carriage driving. For the poor people there are 'keep off' signs on the grass."

After some discussion of the points raised in Mr. Hartman's address, the address of the next speaker, Guy C. Emerson, former Superintendent of Streets of Boston, was delivered. In part, he spoke as follows: "Under any conditions perfection in street cleaning is not possible of attainment and can only be a comparative matter depending upon such conditions as the character

of pavements, and the available appropriation, and the efficiency of the working force; but given reasonable conditions in such matters, the acts of the citizens themselves are such as to prevent the possible result. The problem, moreover, is also one in which citizens have a direct financial interest, as the expenditure of appropriations for necessary work decreases, by such an amount the sum that should be available for the removal of unavoidable litter.

"Do not attempt to interfere with work or methods without the fullest investigation of conditions, make your criticisms temperate and constructive; if you have no certainly better method to offer let things alone. Encourage the preparation and diffusion of statistics regarding the results of dirty streets. Attempt by instruction in the family to instill the importance, the larger matter, of municipal cleanliness in addition to personal cleanliness. Devote attention to the instigation of improved methods and the results in other cities. Secure assisting and supporting legislation to insure the enforcement of sanitary regulations. Secure through the local city government such appropriations as may be necessary for the efficient completion of the work to be done, and here also there is usually a fertile field for education."

Interplayground Athletic Association of Greater New York.—This new association has been organized by the Park Commissioners of New York City, and hereafter will be enrolled as a member of the Metropolitan Association of the Amateur Athletic Union. This move on the part of the Park Commissioners makes the entire park system of New York City one mass of individual members of a great body, every one of whom is interested in and competing in athletic contests. Park Commissioner Charles B. Stover is president of the organization; Michael J. Kennedy, Commissioner of Parks, Boroughs of Brooklyn and Queens, and Thomas J. Higgins, Commissioner of Parks, Borough of the Bronx, vice-presidents; Howard Bradstreet, of the Bureau of Recreation, Department of Parks, secretary.

South Carolina State Firemen's Association.—The sixth annual convention was held at Sumter June 22. Mayor Jennings welcomed the visitors, and President Bibble responded. The following papers were presented: "Fire Alarm Systems for Small Towns," by H. A. Dargan, Greenville; "Improvement of the Fire Service and Lowering of Insurance Rates," by Chief James Fraser, Darlington; "Fire Protection for the Smaller Towns," by Chief T. O. S. Dibble; "The Care of Fire Hose and Apparatus," by Chief Wilson, Florence.

New Jersey Playground Association.—Men and women from ten New Jersey cities and towns met in Newark, N. J., June 29, and formed the State Playground Association as a means for mutual help among educators and philanthropists interested in playground work. The meeting was held in the local headquarters of the Playgrounds Commission, at 74 Newton street. Former Judge George H. Dalrymple, of Passaic, was made president of the new association. For vice-presidents, N. B. Cissel, of Elizabeth; Mrs. Stephen Pfeil, of Camden; Mrs. Caroline B. Alexander, of Hoboken, and E. C. Hill, of Trenton, were chosen. William J. McKiernan, a local playground worker, was selected secretary, and Lincoln E. Rowley, of East Orange, treasurer. The question given the most consideration in the discussion was the opposition which many of those present said was being made by the churches against Sunday playground work. E. W. Krakowitzer, head of the Orange Boys' Club, made it the subject of a long and earnest talk.

North Dakota Good Roads Association.—The convention, the proceedings of which were reported in the Municipal Journal and Engineer, June 29, page 938, closed with the election of officers and passing of resolutions. The following were the officers: President, Prof. J. H. Shepperd, Agricultural College, Fargo; vice-president, George Welsh, Bismarck; secretary-treasurer, Edward Litton, Larimore. Bismarck was chosen as the next meeting place. The most important resolutions passed recommended that the Constitution of the State be amended so as to allow the issue of bonds for highways and approving Senate Bill 6931, now pending in Congress.

Pennsylvania Society for the Prevention of Tuberculosis.—The society has begun a war on the street cleaning methods of Philadelphia. Dr. Howard S. Anders, who has made an exhaustive study for the society of street cleaning methods in the United States and Europe, declares that the Quaker City stands alone in fostering consumption causing conditions. The society will direct its first efforts toward compelling the street cleaning forces to sprinkle the pavements before sweeping, and when that is accomplished will move to have the city equipped with the latest vacuum cleaners.

Calendar of Meetings

July 26-28.
Ohio Electric Light Association.—Annual Convention, Cedar Point, Ohio.—D. L. Gaskill, Secretary, Greenville, Ohio.

July 26-27.
Western New York Volunteer Firemen's Association.—Tenth Annual Convention, Lockport. Charles F. Foley, Secretary, Lockport, N. Y.

July 28-30.
National Good Roads Congress.—Annual Convention, Niagara Falls.—Arthur C. Jackson, President, Chicago, Ill.

August 17-20.
National Firemen's Association.—Thirteenth Annual Convention, Rochester, N. Y. Bert Fisher, Secretary, 3812 Wabash ave., Chicago, Ill.

August 23-26.
League of American Municipalities.—Annual Convention, St. Paul, Minn.—John MacVicar, Secretary, City Hall, Des Moines, Ia.

August 23-26.
International Association of Fire Engineers.—Annual Convention, Syracuse, N. Y.—James McFall, Secretary, Roanoke, Va.

September 6-9.
International Association of Municipal Electricians.—Fifteenth Annual Convention, Convention Hall, Rochester, N. Y.—Frank P. Foster, Secretary, Corning, N. Y.

September 21-23.
New England Water Works Association.—Annual Meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.

October 10-14.
American Street and Interurban Railway Association.—Annual Convention, Niagara Falls, Ontario.—H. C. Donecker, Secretary, 29 West 39th st., New York, N. Y.

October 11-16.
American Society of Municipal Improvements.—Seventeenth Annual Convention, Erie, Pa.—A. Prescott Folwell, Secretary, 239 W. 39th St., New York, N. Y.

November 14-18.
National Municipal League.—Annual Meeting, Buffalo, N. Y. Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

PERSONALS

Anderson, C. T., has been appointed manager of the Chicago office, 1616 Fisher Building, of the C. W. Hunt Company, New York, builders of coal-handling, conveying and hoisting machinery.

Andrews, Horace, Albany, N. Y., a municipal engineer, was married at Hull, England, June 15, to Frances Eleanor Green; they will reside at 125 Lancaster street, Albany, after a honeymoon.

Bodeker, George H., Birmingham, Ala., has been re-elected Chief of Police.

Boyle, Patrick J., Mayor of Newport, R. I., is ill with typhoid fever.

Briggs, Henry E., Milwaukee, Wis., has become Commissioner of Public Works, succeeding the outgoing board of four Commissioners.

Campbell, W. S., North Vernon, Md., has been elected Mayor pro-tem., succeeding James L. Doggett, resigned.

Claybrook, Major J. P., former City Engineer of Louisville, Ky., who has been Acting City Engineer since the resignation of City Engineer John Chambers last December, has been reduced to Assistant Engineer, at a salary of $1,500; Roy W. Burk has been made First Assistant Engineer, at $1,500; Marshall E. Hopkins has been made Chief Draftsman, $1,500, and R. H. Rivers has been reduced to Draftsman, at $1,200.

Crofut, Fred, Lockport, N. Y., has been appointed Health Inspector, succeeding A. J. McMaster.

Ewing, S. R., Owensboro, Ky., has been re-elected Light and Water Commissioner.

Ferguson, David, New York, N. Y., a newspaper man, has been appointed Supervisor of the City Record, succeeding Patrick J. Tracy.

Harvey, A. W., Youngstown, O., has been appointed Assistant City Engineer to succeed Singleton King.

Jackson, William, City Engineer, Boston, Mass., died June 30, of appendicitis. He had been employed steadily on engineering work for the city of Boston since 1868, when he was graduated from the Massachusetts Institute of Technology. Since 1898 he had been Chief Engineer.

Lee, Thomas J., Boston, Mass., an attache of the City Engineer's Office, died June 30, as the result of an operation for appendicitis. He has been employed in the office 34 years.

Marvin, Edward J., Kansas City, Mo., has been appointed Fire Warden.

Puchta, George, Cincinnati, O., has become Park Commissioner.

Redfern, H. H., Lumberton, N. C., has been appointed Chief of Police. He was formerly Chief of Police at Wadesboro.

Skelly, Thomas F., Ogdensburg, N. Y., has been reappointed to the Board of Public Works for a term of four years, by Mayor Hannan.

Stout, Newton L., member of the Board of Police and Fire Commissioners of Lexington, Ky., has been reappointed by Mayor John Skain.

Thompson, Mortimer, Knoxville, Tenn., has been elected Building Inspector of the city, to succeed W. C. Fulcher, resigned.

New City Officials

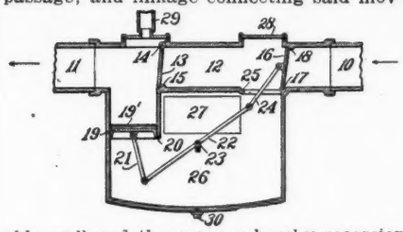
Tampa, Fla.—Board of Public Works, Henry E. Snow, Hugh C. Macfarlane, T. N. Henderson and Eugene Holtsinger, prominent business men. Mayor D. B. McKay, Chairman of the Board.

Missoula, Mont.—Mayor Logan has made the following appointments, which were confirmed by the Board of Aldermen: City Engineer, Fred Buck; Street Commissioner, William Wise; City Attorney, Frank Woody; City Clerk, Will Logan; Chief of Fire Department, Augustus K. Fox; Assistant Clerk, John McCormick; City Physician, Dr. F. D. Pease; Board of Health, Dr. Pease, Prof. W. D. Harkins and C. H. Marsh.

PATENT CLAIMS

961,286. CHECK-VALVE FOR SEWERS. Carl J. E. Carlson, Minneapolis, Minn., assignor of one-half to William Sears, Brookline, Mass. Serial No. 525,270.

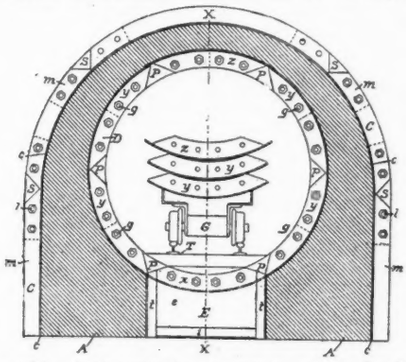
Apparatus comprising a passage having a valve; a chamber, closed to the passage and having a movable wall exposed in the passage; and linkage connecting said mov-



able wall and the valve, whereby recession of the wall closes the valve; there being also a check valve in the passage between the place of exposure of said well and the first mentioned valve.

961,380. CONSTRUCTION OF SEWERS AND SIMILAR STRUCTURES. Charles F. Wilson, Ottawa, Ill. Serial No. 414,578.

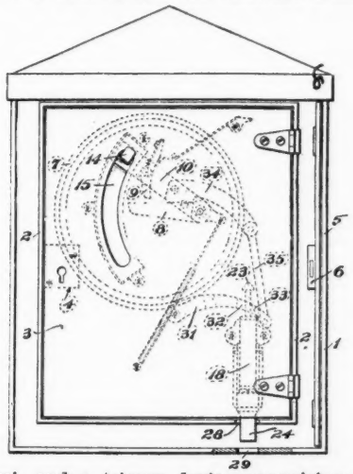
For constructing sewers and similar structures of concrete, brick and other masonry, an inside form consisting of a series of sections each made up of sep-



arable rigid metallic segments having fixed flanges at their ends projecting inwardly, and splice plates detachably bolted to said flanges and breaking joints therewith, said flanges and splice plates forming together internal supporting rings for supporting the segments in a rigid tubular form leaving the interior of the form free.

961,440. FIRE-ALARM BOX. Thomas Haines, St. Louis, Mo. Serial No. 502,693.

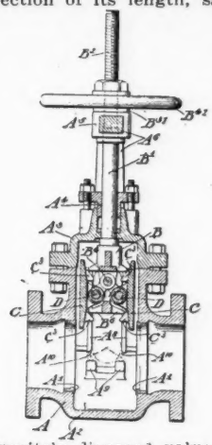
A fire-alarm box containing telegraphic call mechanism comprising an operating lever, a detonating device comprising a firing-pin holder, a barrel hingedly mounted on said holder and adapted to receive an explosive cartridge, a spring-pressed firing-pin slidably mounted in said holder and normally bearing upon the cartridge in said



barrel, and a trigger device comprising a lever-arm adapted to engage said firing-pin and retract the same against the tension of its spring, means for suddenly releasing said firing pin from engagement with said lever-arm, and a connection between said lever-arm and said operating lever of the call mechanism whereby the same are actuated simultaneously.

961,594. GATE-VALVE. Adalbert W. Fischer, Philadelphia, Pa., assignor to Schutte and Koerting Company, Philadelphia, Pa., a corporation of Pennsylvania. Serial No. 362,430.

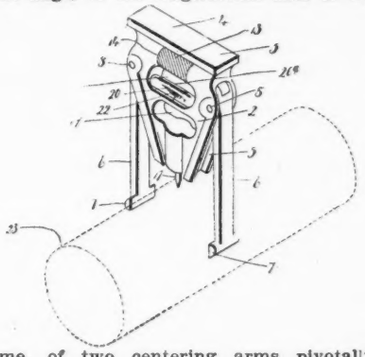
In a gate valve, a casing, a valve stem extending into said casing and movable in the direction of its length, said casing



having oppositely disposed valve seats one on each side of the line of movement of the stem, a valve for each seat, one or more links connecting each valve to the stem, guides carried by the stem adjacent its connection to said links, guides connected to the valves, and guides carried by the casing for coöperating with the stem carried guides to hold the stem against lateral movement at all times, and with the guides connected to the valves to cause the valves to move first transversely to the line of movement of the stem and then parallel thereto in opening and reversely in closing.

961,599. CENTERING DEVICE. Alcide Franchini, New Haven, Conn. Serial No. 530,082.

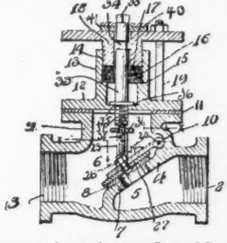
In a centering device, the combination with a wedge-shaped frame having a face functioning as a "square" and located at a right angle to the longitudinal axis of the



frame, of two centering arms pivotally mounted in the frame, means for operating the said arms, a centering pin mounted in the frame, and a spirit level mounted in the frame at a right angle to the said centering pin and between the same and the said means for operating the said centering arms.

961,738. COMBINED CHECK AND GATE VALVE. John H. Stickel, Handy Harrisville Station, Pa. Serial No. 543,622.

A combined check and gate valve comprising a casing provided with a valve seat, a valvular element embodying a hinged plate and a seating disk of a diam-



eter as to project beyond said plate and adapted to engage said valve seat, a valve stem provided wtih means for locking said valvular element upon its seat, and means coöperating with the valve stem and engaging said seating disk for elevating said valvular element, and means for maintaining the valvular element in an elevated position.

961,244. APPARATUS FOR BONING OR LAYING DRAIN-PIPES. Joseph Milner Lockhart and Herbert John Jenkinson, Manchester, England. Serial No. 525,587.

An instrument of the class described, comprising a casing, a swivel block therein, a spirit level carried by the block, a scale

within said casing and having one end secured to the block and its other end free, and sliding means on said free end for oscillating the scale, said sliding means being an engagement with said casing.

961,268. ARC-LAMP ELECTRODE. George A. Thompson, Somerville, N. J. Serial No. 454,571.

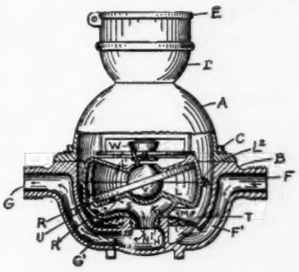
An electrode containing metallic molybdenum mixed wtih metallic iron.

961,269. ARC-LAMP ELECTRODE. George A. Thompson, Somerville, N. J. Serial No. 454,572.

An electrode containing oxide of molybdenum and a material having greater electrical conductivity.

691,116. WATER - METER. Ernest E. Gamon, Newark, N. J. Serial No. 496,852.

A water meter comprising an inclosing case provided with inlet and outlet spuds, an annular boss integral with one of said spuds, a disk chamber provided with inlet



and outlet ports located within and circumferentially free from said inclosing case and separated therefrom to form a receiving chamber and a central tubular stem depending from said disk chamber and registering with said annular boss.

INCORPORATIONS

The Automobile Gas Machine Co., Charlotte, N. C., capital $50,000. Incorporators: W. D. Beck, J. T. Vann and others. tashcrno

Gifford Construction Company, Borough of Queens, N. Y., general contracting and construction, Capital $10,000. Incorporators: George H. Gifford, 400 Hillside Ave., Jamaica, N. Y.; Allen B. Gifford, Valley Falls, N. Y.; Jessie P. Gifford, Valley Falls, N. Y.

East Jersey Light & Power Company, Jersey City, N. J., capital, $1,500,000.

The Kentucky Asphalt Co., Louisville, Ky. Incorporators: L. O. Hasenstab, Frank G. Breslin and Romeo Breslin.

Mason, Hilton & Company, New York; engineers, contractors and builders; capital $50,000. Incorporators: Francis Mason, 47 Remsen St., Brooklyn, N. Y.; Joseph C. Hilton, 212 Union St., Hackensack, N. J.; Albert L. Mason, 56 Wall St., New York City.

John MacArthur Contracting Co., Brooklyn, N. Y.; general contracting business; capital $10,000. Incorporators: John MacArthur, James MacArthur, E. C. Carpenter, all of Richmond Hill, N. Y.

Monroe Paving Co.; Corporation Guarantee & Trust Co.; Capital $50,000. Incorporators: F. R. Hansell, Philadelphia, Pa.; Geo. H. B. Martin, S. C. Seymour, both of Camden, N. J.

Stone Harbor Electric Light and Power Company, Camden, N. J.; capital $100,000. Incorporators: Howard S. Risley, David Risley and Reese P. Risley. The company is to operate electric lighting, heating and power plants.

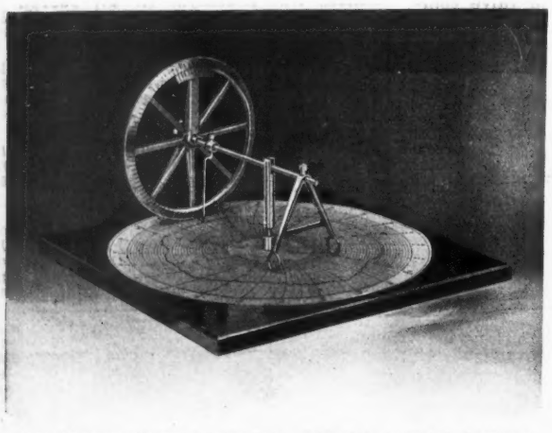
Wanakah Water Company, Wanakah, Erie County, N. Y.: Supply water to cities, villages, etc.; capital $10,000. Incorporators Lucius E. Bartlett, 54 Linwood Ave., Buffalo, N. Y.; Eugene D. Thebaud, 441 Fargo Ave., Buffalo, N. Y.; John T. Roberts, Wanakah, Erie County, N. Y., and four others.

MUNICIPAL APPLIANCES

The Bristol-Durand Radii Averaging Instrument for Circular Chart Records

The Bristol Company, of Waterbury, Conn., has for the last twenty years made a specialty of manufacturing automatic recording instruments for pressure, temperature and electricity. As this class of recording instruments using circular charts have come into general use, there has developed a demand for a simple device to quickly determine the average of the record made on such charts, and the integral value for the whole twenty-four hours, or for the time covered by the record. This demand has been filled by the instrument illustrated herewith, which is based upon a fundamental plan as worked out and patented by Prof. W. F. Durand, of Stanford University, and is constructed in accordance with a novel design recently patented by William H. Bristol, president of the Bristol Company. The instrument can be applied for averaging records of any kind on circular charts having uniform graduations, as, for instance, records of watts, amperes, temperature, pressure, etc. Recording instruments equipped with circular charts are therefore made available for a number of applications for which it was previously thought necessary to use instruments recording on straight lines or strip record charts. Recording differential pressure gauges are coming into use for measuring velocities and volumes of liquids, air or gas flowing in mains, and this integrating device will prove of value for quickly obtaining total volumes of flow for any given period of time. The simple construction of the instrument is shown in the accompanying illustration. A wooden base with a metal socket is provided for supporting and centering the chart. The socket holds a rotatable pin with a vertical slot at the top to receive the bar which carries the integrating tracer point and triangular support. The vertical groove in the rotatable pin allows the integrating wheel to roll on the chart with uniform pressure due to its own weight. The integrating wheel is 6 inches in diameter, the rim being graduated into 100 numbered equal spaces, and is fitted with a vernier, which makes it possible to easily read with the naked eye to one-tenth of one division on the integrating wheel. The wheel is of such large size it is not necessary to supply any counting device for the number of revolutions. The number of complete revolutions cannot be more than two, even for a record of maximum size on the large 12-inch charts. To operate the instrument the thumb and forefinger of one hand are applied to the base of the triangular support, which is moved radially, so as to cause the tracer point to continually follow the record curve, while the chart is turned with the other hand. By referring to a line plotted on a sheet of cross-section paper, furnished with the instrument, for the particular record curve that is to be measured, the total reading for the entire twenty-four hours may be taken off directly.

A full explanation of the theory upon which the operation of the instrument depends has been given by Professor Durand, in a paper presented at the New York meeting of the American Society of Mechanical Engineers in 1908. This may be briefly summarized as follows: The integrating wheel being carried at right angles to shaft passing through the center does not turn and give a reading when the tracing point is moved on a straight radial line; but if the tracing point is made to follow a record the integrating wheel will revolve and the amount of the revolution will correspond to the total of the circumferential elemental components of the record curve, the radial elemental components of the record having no turning effect on the integrating wheel. As the lengths of the arcs of concentric circles for given angles or for the entire circumference are proportional to their radii, it is evident that the amount of turning of the integrating wheel, and the reading obtained thereon, will be proportional to the average radius of the record traced. The instrument is adapted for integrating charts with either straight or curved radial time arcs. The correction necessary for radial time arcs which are curved may be made, after completely tracing the record, by returning the tracing point to a point on the chart having the same radius as the starting point, the movement of the tracing point being along an arc corresponding to the curved radial time arcs.



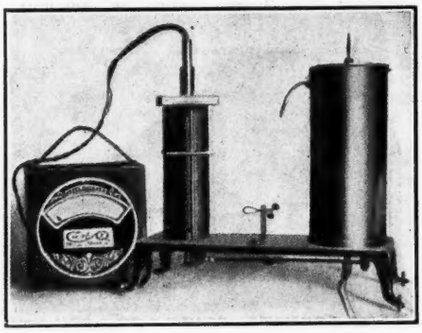
AVERAGING INSTRUMENT FOR CIRCULAR CHART RECORDS

Fine Crusher and Pulverizer

The condition which has made the crushing of rock, ores, coal and other refractory substances so expensive for machinery is said to be due to the necessity of consecutive operation in order to produce a product of given fineness. Mitchell's improved crusher, by its ability to grind while it crushes, is claimed to be able to obtain a fine product from one operation. This crusher is manufactured by the Eureka Stone and Ore Crusher Company, Cedar Rapids, Ia., and is claimed to be superior in its simplicity, principle of operation, material used in its construction, oiling devices, hand-wheel adjustment, safety toggle plate and economy in installation. It is illustrated and described in literature which the company is distributing. The increased demand for fine material, particularly in bituminous macadam or concrete construction where the stone and bitumen are mixed by machinery, may make this crusher interesting to contractors in that line.

Automatic Gas Colorimeter

The illustration shows an automatic gas colorimeter, indicating or recording, or both, continuously the British thermal units generated per cubic foot of any gas submitted to it. Comment is almost unnecessary on the value of

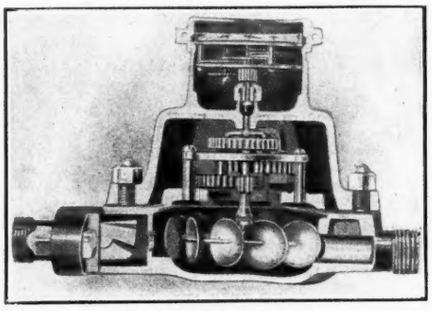


MEASURES HEAT UNITS OF GAS

the apparatus to city officials who have supervision over gas companies supplying gas to consumers of a certain guaranteed heating quality. All that is necessary to do is to connect by rubber tubing with a gas jet, light the burner of the calorimeter and the apparatus will begin counting heat units. The machine is manufactured by the Carb-Ox Company, Rogers Park, Chicago, Ill.

Accurate Small-Sized Current Meter

Current meters in small as well as large sizes are manufactured by the Standard Water Meter Company, 243 Robinson street, Brooklyn, N. Y. Accuracy in large sizes is a characteristic of current meters. In the small sizes this is secured by the use of sapphire



SAPPHIRE WATER METER

jewels on all sensitive bearings. From this peculiarity of construction the trade name "Sapphire," under which these meters are manufactured, is derived. The measuring device of the meter is a series of cups mounted on a cup plate which revolves a spindle, from which by a train of gears the clock is made to register the amount of water passing through the meter. On account of the fine bearings and construction of the meter neither sand nor sediment, it is claimed, can stop or retard the uniform perfect action of the meters. An incidental advantage is that they can be used for measuring water fed to boilers, as they contain no rubber. It is claimed that the cost of maintenance is smaller than any other meter on the market. For use where there is a chance of freezing a frost-proof meter is used. In this type the upper and lower casing is held together by clamps instead of nuts and bolts. The clamps, being weaker, will break when the meter is in danger of being frozen, thus averting injury to the working parts.

TRADE NOTES

Cast Iron Pipe.—Chicago: While there have been no large lettings, there are many small ones from Western municipalities, and routine inquiries are also keeping up. Quotations: 4-inch, $28; 6 to 12-inch, $27; 16-inch and up, $26. Birmingham: Market is fairly active in the matter of small lots. Producers are said to be somewhat concerned as to tonnage for fall and winter manufacture. Quotations: 4 to 6-inch, $23; 8 to 12-inch, $22; over 12-inch, average, $21. New York: Volume of business is light with little inquiry. No indications visible of an early improvement in demand. Quotations: 6-inch, carload lots, $25 to $25.50.

Lead.—Market firm, but inactive. Quotations: New York, 4.375c.; St. Louis, 4.225c.

Sectional Conduit.—The Portland Stoneware Co. of Portland, Maine, and Boston, Mass., has just published a new catalogue on its system of underground pipe protection—the Portland Sectional Conduit System. Copies will be mailed on request from either the Boston or Portland office.

Large Meters.—The Rotary Meter Company, whose plant is at Reading, Pa., and whose offices are at 280 Broadway, New York, has leased from United States Senator John Kean the old South street plant of the Elizabethtown Gaslight Company, Elizabeth, N. J., and will remove to Elizabeth about August 1. The object in locating there is to get near Newark and New York. The company will manufacture on a large scale rotary station meters that will rate as high as 675,000 cubic feet per hour and will weigh six tons each. The casings which are used by the Rotary Meter Company are made and machined by the Isbell Porter Company, of Newark. Charles P. Mayer, of New Haven, Conn., will be superintendent of the plant.

Gas Company Consolidation.—Emmet Queen, of Pittsburg, and Attorney Percy Allen Rose, of Johnstown, have formed a partnership in a financial project, having for its object the acquirement of the lighting plants in several of the leading cities and towns of Pennsylvania. A step was taken Saturday, when, for a price of $3,000,000, they secured control of two rival electric plants at Harrisburg.

Gas Company Consolidation.—The Public Service Commission, Second District, of New York, has received an application from the Poughkeepsie Light, Heat and Power Company, Newburgh Light, Heat and Power Company and Hudson Counties Gas and Electric Company for leave to consolidate into a single corporation to be known as the Central Hudson Gas and Electric Company. The companies sought to be consolidated supply gas or electricity and in some instances both to the city of Poughkeepsie and towns of Poughkeepsie and Hyde Park, Dutchess County; towns of Lloyd, Marlborough, Gardiner, Shawangunk, Plattekill and New Paltz, Ulster County; and village of Cornwall and towns of Cornwall, Newburgh, New Windsor and Blooming Grove, Orange County. The directors of the new company will be E. E. Perkins, J. W. Hinkley, A. G. Tobey, George A. Voorhees, of Poughkeepsie, N. Y.: Francis N. Bain, Hugh M. Beugler, Albert R. Beal, William R. Beal and Thaddeus R. Beal, of Newburgh, and John E. Wilkie and Rolland A. Davidson, of New York.

Lock Bar Steel Pipe.—The suit in the Court of Chancery of New Jersey involving the ownership of certain inventions and patents relating to the manufacture of lock bar steel pipe, and asking to enjoin and restrain the defendants from the manufacture of lock bar pipe, brought by the East Jersey Pipe Company against John Fraser, of Hackensack; Thomas Gray, of Paterson, and the Fraser Lock Bar Pipe Company, at 50 Church street, New York City, was dismissed June 22 by order of Vice-Counsellor Garrison at the request of Griggs, Baldwin & Baldwin, attorneys for the complainant, and on payment of costs to the defendants. Dismissal was agreed to by Raymond Dawson, attorney for defendants, only after agreement by complainant's attorneys that, as there had been no proper grounds or cause for action, there would be no reinstatement or recurrence of this case in any form. John Fraser, the principal defendant, was for some time general manager of the complainant company, which is owned principally by the T. A. Gillespie Company, but the inventions in dispute were neither thought of nor developed until after his connection with that company ceased. The Fraser Lock Bar Pipe Company will now proceed to develop its plans and erect works for the manufacture of lock bar pipe under its own patents as rapidly as is feasible, but as the plant will be quite an extensive one, it will be some time before its pipe is on the market.

Gas Plant.—The Cedar Rapids gas plant, Cedar Rapids, Ia., has been sold to Child, Hulswitt & Co., of Grand Rapids, Mich., for approximately $730,000. Glenn M. Averill, the former owner, will have stock in the company, and will continue to be the manager. It is believed the sale will end the litigation between the city and the company. The ordinance fixing the price of gas at 90 cents per 1,000 feet has been affirmed by the State courts and is now before the United States Supreme Court. The new owners expect to reach an amicable settlement with the city and also secure a renewal of the franchise.

Calcium Magnesium Chloride.—Rhodes' calcium magnesium chloride, which has been placed on the market by James H. Rhodes & Co., 2 Cedar street, New York, is a mixture of chloride and magnesium chloride. Both salts have the property of absorbing moisture from the atmosphere and the material is suitable for dust laying.

Spraying Pumps.—The Field Force Pump Company, Elmira, N. Y., manufacturer of spraying pumps, spraying machines and force pumps, is erecting a two-story and basement building, 75 x 110 feet, to be used as a woodworking, painting and shipping department. The company will install electric motors, generators and perhaps two or three woodworking machines.

Conveying and Hoisting Machinery.—C. W. Hunt Company, New York, N. Y., builders of coal handling, conveying and hoisting machinery, have opened offices at State Bank Building, Richmond, Va., and also 607 Rhodes Building, Atlanta, Ga., with W. F. Lee, for several years preliminary engineer to the company, in supervision.

Valves.—W. J. Hess, who has been manufacturing brass and iron valves at another point in Wisconsin, is to build a new plant at Green Bay, Wis., and will remove to that place the machinery now operated. Some additional equipment will also be required as soon as his plans have been fully formulated.

Portland Cement.—The United States Steel Corporation has authorized its subsidiary, the Universal Portland Cement Co., to complete at once the construction of Plant 6, at Buffington, Ind., to its full capacity of 4,000,000 barrels per annum. In January, 1910, appropriation was authorized for the construction of the first half of this plant, to have a capacity of 2,000,000 barrels, and a decision has now been made to extend the plant to its full ultimate capacity at this time, at a total cost of $4,500,000. This includes the cost of the power station at Gary, where the electric power to operate the cement plant will be generated, utilizing the waste gases from the blast furnaces. When the plant is in full operation, in May, 1911, it will be, it is stated, the largest single unit manufacturing Portland cement, and with cement Plants 3 and 4, which have been in operation for some years, at Buffington, will give a total capacity at that point of 8,000,000 barrels per annum. With the completion of this plant the Universal Portland Cement Co. will have, including its present plant at Pittsburg, an annual capacity of 12,000,000 barrels, all manufactured from blast furnace slag and limestone.

Corrugated Culverts.—The Ritchie Corrugated Culvert Company, Ottumwa, Ia., has purchased a factory site in Muscatine, Ia., and immediately upon the completion of a switch which is being installed by the Chicago, Milwaukee & St. Paul Railroad, will begin the erection of factory buildings, which will be of structural steel and concrete construction. The company will install a power plant, together with air compressor and other improved machinery for the manufacture of sheet metal products, operations to commence in the new plant by November 1.

Pumps and Engines.—In connection with the purchase of a new plant by the Erie Pump and Engine Works, main office, Odd Fellows' Temple, Erie, Pa., it is interesting to note that the company will have ample room for the expansion of its trade. Its plant is central to railroads, freighthouses, etc., and affords excellent facilities for manufacture and shipment. The company states that at present its trade is all that can be expected, and indications point to a banner year. It manufactures turbine pumps, centrifugal pumps, sand pumps, steam engines, etc., and anticipates doubling the capacity of its plant.

Concrete Piles.—The MacArthur Concrete Pile and Foundation Co., 11 Pine street, New York, has secured the contract for the foundations of a large gas tank for the New Haven Gas Light Co., New Haven, Conn. The work consists of a concrete retaining wall, 470 pedestal concrete piles and a reinforced capping for the piles. This type of piling consists of cast-in-place concrete piles with enlarged bases formed on their lower ends.

Construction Company Change.—The Cranford Construction Co., with main offices in the Gerke Bldg., Cincinnati, Ohio, has acquired the business of the Cranford Paving Co., in the Pittsburg district.

Excavators.—The Bucyrus Company, South Milwaukee, Wis., will hereafter manufacture the Heyworth-Newman excavators under exclusive patent rights, and is now arranging for a large annual output.

Sewer Inlets.—A side product of the Burch Plow Works, Crestline, O., which has been taxing the available foundry capacity this season, is a cast iron adjustable sewer inlet, that sells largely to municipalities.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Ohio	Mt. Gilead	July 8	Brick paving, 6,000 sq. yds., limestone base	M. F. Wieland, Village Clerk.
Ohio	Cincinnati	July 8	Widening road on Harris ave., Mt. Wash., Anderson twp.	Fred Dreihs, Clk. County Comrs.
California	Quincy	July 8	Bldg. road	County Clerk.
Ohio	Wooster	July 8, noon	Brick paving and grading, 1.8 miles; cost, $13,172	St. Hwy. Comr., c.of Co. Comrs.
Indiana	Lebanon	July 8, 2 p.m.	Bldg. 2 gravel roads in Harrison and Eagle twps.	B. F Hendrick, County Auditor.
Indiana	Richmond	July 8, 2 p.m.	Bldg. National road, cost, $57,460. from city line west	D. S. Coe, County Auditor.
New York	Hoosick Falls	July 8, 8 p.m.	Brick paving, 900 sq. yds.; bit. macadam, 2,700 sq. yds.; concrete sidewalks, 68,200 sq. ft.; driveways, 5,600 sq. ft.; concrete curb and gutter, 4,660 lin. ft.; relay 7,500 sq. ft. flag walk. W. Thomas Wooley, Village Engineer	S. L. Cluett, Sec'y Pub. Imp. Com.
New Jersey	Flemington	July 8, 11 a.m.	Building macadam road 17,802 ft. long	J. W. Sharp, Dir. Co. Freeholders.
Oklahoma	Ardmore	July 8, noon	Paving various streets	G. H. Bruce, City Clerk.
New Hampshire	Allenstown	July 8, 1 p.m.	Bldg. 1,120 ft. trap rock road in town	H. C. Hill, Concord State Engineer.
Indiana	Columbus	July 8, 10 a.m.	Bldg. gravel road	J. M. Davis, County Auditor.
New Hampshire	Merrimack	July 8, 1 p.m.	Bldg. 2,800 ft. of gravel road	H. C. Hill, Concord, State Engineer.
Ohio	Wooster	July 8, noon	Paving 1.08 miles of road, brick; cost, $13,172	Wayne County Commissioners.
Kentucky	Lexington	July 9, noon	Paving 24,530 sq. yds. any suitable material; 3,975 cu yds. concrete, 775 ft. limestone or concrete curb, Main st.	John Skain, Mayor.
Ohio	Findlay	July 9	Bldg. 5 miles stone pike in Delaware County	Frank C. Shank, County Auditor.
Dist. of Colum'a	Washington	July 9, noon	Paving various streets with asphalt and asphalt block	C. H. Rudolph, Chm. Bd. Comrs.
Wisconsin	Racine	July 9, 10 a.m.	Paving 8,507 sq. yds. paving, inc. grading; also 5,156 lin. ft. conc. comb. curb and gutter	P. H. Connolly, Chm. Bd. Pub. Wks.
Nebraska	Seward	July 10	Paving, guttering, curbing, Dist. No. 1	Mell Gordon, City Clerk.
California	Sacramento	July 11	Bldg. oiled macadam pavement on G st	M. J. Desmond, City Clerk.
Arkansas	Little Rock	July 11	Resurface intersections of all streets crossing Center street with sheet asphalt	F. M. Oliver, Clk. Bd. Affairs.
Connecticut	Plainville	July 11	Improving 7,298 ft. Plainville-Farmington Road	Jas. MacDonald, Hwy. Comr.
Indiana	Anderson	July 11	Bldg. 4,346 sq. ft. cement walk, 1,000 lin. ft. curb and gutter	G. A. Lampher, City Engineer.
Indiana	Newport	July 11, 10 a.m.	Bldg gravel road in Clinton township	H. T. Payne, County Auditor.
New Jersey	Newark	July 11, 3 p.m.	Bit. Telford paving, grading, etc., 4 miles Pleasant Valley Way, from Verona to West Orange	Wallace Oughiltree, Dir. Freeholders.
Wisconsin	Waukesha	July 11	Tar macadam paving, 31,139 sq. yds.; brick on concrete, 5,770 sq. yds.; comb. concrete curb and gutter, 21,435 lin. ft.; excavation, 15,450 cu. yds., 5 streets and avenues	Morgan R. Butler, City Engineer.
Iowa	Vinton	July 11, 8 p.m.	Bldg. 35,800 sq. yds. brick pavement and 11,000 sq. yds. conc. curb. S. N. Parsons, Marion, Engr	W. E. Klinganam, City Clerk.
Michigan	Lansing	July 11, 4 p.m.	Paving Turner street	P. F. Gray, City Clerk.
Washington	Ft. Worden	July 12, 11 a.m	Bldg. roads, walks, grading, etc., at fort	E. C. Long, Constr. Q.M.
Ohio	Beech City	July 12, noon	Paving with vit. brick, setting stone curb, necessary drainage; cost, $13,789	City Council.
Pennsylvania	Avalon	July 12, 4 p.m.	Paving Chestnut st.; 2,270 sq. yds. paving, 200 yds. repaving, 1,020 cu. yds excavation, etc.	McBride Sur'g & Eng'g. Co., Ltd., 331 Fourth Ave., Pittsburg, Engineers.
New York	Ft. Slocum	July 12, 11 a.m.	Building roads, walks, curbs, gutters and drains	Constructing Q. M.
Florida	Lake City	July 12, 7:30 p.m.	Brick paving, laid flat, 16,000 sq. yds.; cement walks, 5 miles; cement or 2x6 heart pine curbing	J. W. Layne, Sec'y Bd. Pub. Wks.
Montana	Fairmont	July 12	Graveling road	H. P. Edwards, County Auditor.
Ohio	Akron	July 13, noon	Curbing and improving Wabash ave., sewers, etc.	J. W. Gauthier, Dir. Pub. Service.
Ohio	Madisonville	July 13	Improving Sherwood ave. by grading, rolling and macadam	J. A. Conant, Village Clerk.
New Jersey	Freehold	July 13, 11 a.m.	Bldg. Southard and Allentown-New Egypt roads	G. W. Patterson, Jr., Clerk Bd. Fr'rs.
Ohio	Columbus	July 13, noon	Furn. 1,500 bbls. of cement at New Bremen and 500 at Minster.	J. R. Marker, Ch. Engr. Pub. Ws.
Ohio	Millersburg	July 13, noon	Brick paving and grading .86 mile; cost, $11,783	State Hwy. Com. C. of Co. Comrs.
Ohio	Cincinnati	July 13, noon	Furn. 8-ton asphalt steam roller	J. J. Wenner, Clk. Bd. Pub. Serv
Maryland	Towson	July 14	Improving Hillsdale Road	H. G. Shirely, Roads Engineer.
Iowa	Ft. Madison	July 14	Paving 16,000 sq. yds. vit. brick block	L. G. Kiel, City Clerk.
Iowa	Osceola	July 14	Paving, 13,000 sq. yds.; cement curbing, 8,000 lin. ft.	W. N. Temple, City Clerk.
Ohio	Sandusky	July 14	Grading, curbing and paving 25,000 sq. yds. with asphalt; curbing 12,000 lin. ft.	John Bing, Dir. Pub. Service.
Ohio	Cincinnati	July 15, noon	Improving various roads; 4 jobs	Fred. Dreihs, Clk. Bd. Co. Comrs.
Wisconsin	Wausau	July 15	Creo. block paving, 8,000 sq. yds	B. C. Gowan, City Engineer.
Ohio	Cincinnati	July 15, noon	Improving two roads	Fred. Dreihs, Clk. Bd. Co. Comrs.
Ohio	Dayton	July 15, noon	Grading and Macadamizing .852 mile road; cost, $11,593	State Hwy. Com. C. of Co. Comrs.
Maine	Kittery	July 15, 2 p.m.	Bldg. about 8,000 ft. macadam road	J. R. Philbrick, Chm. Selectmen.
Ohio	Lockland	July 18, noon	Improving Wyoming ave	C. E. Troy, Village Clerk.
Georgia	Atlanta	July 18	Paving 50,000 sq. yds. creosoted wood blocks and 12,000 sq. yds. macadam	R. M. Clayton, City Engineer.
Indiana	Evansville	July 18 10 a.m	Improving and resurfacing Fourth and Division Streets	Harry Stinson, County Auditor.
Florida	St. Augustine	July 20, 9 a.m.	Furnishing steam road roller	T. M. G. Carrera, City Clerk.
Indiana	Birch Grove	July 20, noon	Bldg. 1,200 ft. of cement walk	Wm. C. Clapp, Sec'y School Town.
Ohio	Cincinnati	July 22, noon	Improving Hamilton and Montgomery Pikes	Fred Driehs, Clk. Co. Comrs.
West Virginia	Huntington	July 25, 1 p.m.	Grading, paving, etc., 7 streets; 56,500 sq. yds. paving, 24,000 lin. ft. curb; A. P. Maupin, City Engineer	John Coon, Comr. of streets.
Wisconsin	Racine	July 30, 10 a.m.	Asphalt paving, 10,371 sq. yds.; comb. curb and gut, 5,547 ft.	P. H. Connolly, Chm. Bd. Pub. Wks.
Florida	St. Augustine	Aug. 1, 9 a.m.	Bldg. public highway	C. M. Milburn, County Engineer.
SEWERAGE				
Indiana	Marion	July 8	Bldg. 18th st. storm sewer	F. B. Heck, Clerk Bd. Pub. Works.
Ohio	Mt. Gilead	July 8	Bldg. sewers; cost, $3,000	W. B. Eells, Village Engineer.
Kentucky	Louisville	July 8, noon	Bldg. Sect. B, Contract 71; 1,970 ft. 42 and 54-in. conc. sewer, inc. 830 cu. yds. conc. and 617 ft. 27-in. vit. pipe	J. B. F. Breed, Ch. Engineer.
Pennsylvania	Norristown	July 8	Bldg. sewage disposal plant, laying pipe, etc., at State Hospital; Albright & Mebus, Engineers	Commission on Sewerage.
New Jersey	Phillipsburg	July 8	Bldg. 1,300 ft. 4x4-ft. concrete storm sewer	R. P. Howell, Town Engineer.
Indiana	South Bend	July 8	Bldg. pipe sewer and connections, E. Madison st.	O. C. Bastian, Chm. Bd. Pub. Wks.
Massachusetts	Boston	July 9 11 a.m.	Bldg. drain at navy yard	Com. Officer, Navy Yard.
North Dakota	Ellendale	July 11	Bldg. sewage disposal plant	John King, City Auditor.
Iowa	Ft. Dodge	July 11, 5 p.m.	Bldg. storm water sewer, various streets	W. L. Tang, City Clerk.
Montana	Missoula	July 11, 5 p.m.	Building sanitary sewer system; see "Proposals," June 22	C. W. Swearingen, City Engineer.
Minnesota	Winona	July 11	Bldg. storm, water and sanitary sewers, 2 streets	P. A. Jasmer, City Recorder.
South Carolina	Charleston	July 11, noon	Bldg. sewage receiving tank, pump pit, etc., including vert. centrifugal pumps, elec. motors, control, devices	J. H. Dingle, City Engineer.
Idaho	Sandpoint	July 11, 4 p.m.	Bldg. 13,817 lin. ft. 8 to 18-in. vit. pipe sewer, 800 lin.ft. 30-in. rein. concr. pipe, 2,000 lin. ft. 16-in. wood-stave pipe, one screen house, etc.; Foster & Case, Engrs	Dr. R. N. Jackson, Chm. Sewer Com.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
			SEWERAGE (Continued)	
New Jersey	Newark	July 11, 3 p.m.	Bldg. two 24-in. sewers, 1,050 ft. 4-ft. rein. conc. sewer, 24-in. pipe culvert, rein. conc. culvert and recovering Linden st.	Jas. Owen, County Engineer.
Saskatchewan	Swift Current	July 12, 8:30 p.m.	Furn. f.o.b. city 18,700 ft. 7-in., 4,250 ft. 10-in., 3,450 ft. 12-in., 3,150 ft. 15-in., 500 ft. 4-in., 100 ft. 6-in. tile sewer, etc.; Ys, bends, etc.; J. Darlington Whitmore, Regina, Engineer.	Geo. W. Bilbrough, Sec'y-Treas.
Kansas	Sabetha	July 12	Bldg. 8 miles sewers, inc. 2 septic tanks	Burns & McDonnell, K. C., Mo.
New York	New Brighton, S.I.	July 12, noon	Bldg. temporary sanitary, also combined sewer	Geo. Cromwell, Borough President.
Minnesota	Crookston	July 12, 8 p.m.	Bldg. 1,510 lin. ft. 9 to 12-in. vit. clay pipe sewer	J. E. Carrol, City Engineer.
Georgia	Atlanta	July 12, 10 a.m.	Furn. and delivering sewer and water pipe, fittings, etc., at Pen.	Warden, U. S. Penitentiary.
Kansas	Herington	July 12, 7 p.m.	Bldg. sewer system; Burns & McDonnell, K. C., Engineers	G. W. Krause, City Clerk.
Iowa	Leon	July 12, 8 p.m.	Bldg. 2 miles 6 to 12-in. sewer and disposal plant; cert. checks, $500 each; Iowa Engineering Co., Clinton, Engineers	S. G. Mitchell, City Engineer.
New York	Binghamton	July 13, 4 p.m.	Bldg. vit. pipe sewer in 3 streets	S. W. Murray, Clk. Bd. Cont. & Sup.
Nebraska	O'Neill	July 13, 8 p.m.	Bldg. sanitary sewer system	H. J. Hammond, City Clerk.
Ohio	Akron	July 13, noon	Bldg. main trunk sewer, Ira and Cole aves	J. W. Gauthier, Dir. Pub. Service.
New York	New York	July 14, 11 a.m.	Completing contract of Wakefield Constr. Co. in Bronx	C. C. Miller, Pres. Boro. Bronx.
Kansas	Herington	July 15	Bldg. 8 miles sewer, including one septic tank	
New Jersey	Elizabeth	July 15, 8 p.m.	Bldg. 315 ft. 10-in., caulked joints; also 336 lin. ft. 6-in. pipe, 2 manholes; includes inspector's pay	N. K. Thompson, Street Comr.
New Jersey	Westfield	July 18	Bldg. several pieces of sewer	City Council.
New Jersey	Millburn	July 18, 8 p.m.	Laying 9,000 ft. pipe sewers	M. R. Silance, Township Clerk.
Saskatchewan	Saskatchewan	July 18, 8 p.m.	Bldg. sewage disposal plant, also trunk sewer	W. F. Heal, City Clerk.
Ohio	Minerva	July 18	Bldg. 2-ft. sewer system to Clear Fork	H. H. Freed, Village Clerk.
New Jersey	Haddon Heights	July 19	Bldg. sanitary sewers and disposal works	Borough Council.
Pennsylvania	Philadelphia	July 20	Bldg. sewage disposal plant at Torresdale	G. R. Stearns, Dir. Pub. Wks.
Pennsylvania	Philadelphia	July 20, noon	Bldg. sewage disposal works, main sewer, etc	Geo. R. Stearns, Dir. Pub. Wks.
Ontario	Toronto	July 26, noon	Bldg. 1,340 ft. 5-ft. rein. conc. pipe sewer	Mayor G. R. Geary, Chm. Bd. Cont.
Georgia	Sylvania	Aug. 1	Constructing sewer system	A. B. Lovett, Mayor.
			WATER SUPPLY	
Virginia	Waynesboro	July 8	Bldg. steel stand pipe, 25 ft. diam., 80 ft. high	P. D. Woodfin, Town President.
Utah	Salt Lake City	July 8, 10 a.m.	Sinking an artesian well on Levan ridge, Juab Co.	W. H. Farnsworth, Sec'y Land Bd
Iowa	Corydon	July 11, 7:30 p.m.	Drilling deep wells; old bids rejected; $300 check	Iowa Eng. Co., Clinton.
Iowa	Indianola	July 11, 7 p.m.	Furn. and laying 10,000 ft. 4-in. c.-i. pipe, 15 eddy hydrants and 17 gates	J. H. Clark, City Engineer.
New York	Livonia	July 11, noon	Bldg. pumping plant to connect with existing mains, triplex pump, 400 ft. 6-in. main, castings, gates, etc	C. H. Cary, Clk. Bd. Water Comrs.
New York	Pike	July 11, 7 p.m.	Bldg. gravity water system	A. M. Thomas, Village Clerk.
Georgia	Atlanta	July 12, 10 a.m.	Furn. water pipe, fittings, sewer pipe, etc., at Penitentiary	Warden, U. S. Penitentiary.
Washington	Sultan	July 13	Bldg. water system; cost, $14,500	H. Mumm, Jr., Everett, Engineer.
New York	New York	July 13	Furn. and delivering corporation cocks, valves etc	H. S. Thompson, Comr. Wtr. Sup., Gas and Electricity.
Ohio	New Bremen	July 13	Bldg. dam and aqueduct; cost, $15,000	J. L. Marker, Ch. Engr. St. Bd. Pub. W.
New York	Brooklyn	July 13, 11 a.m.	Repairing boiler and pump house, Caisson No. 2	A. E. Steers, Borough President.
Pennsylvania	Pittsburg	July 14, noon.	Bldg. steel tank, capacity 125,000 to 150,000 gals., on tower 100 ft. high	John Francies, Warden Penitentiary.
Minnesota	Donnelly	July 14, 2 p.m.	Bldg. tower tank, 85 ft. high and laying 4 and 6-in. water mains, 2 blocks	C. R. Sathers, Village Recorder.
Mississippi	Oxford	July 15	Drilling wells and furnishing machinery, two systems	W. L. Smith, Dep. City Clerk.
Colorado	Boulder	July 18, 7 p.m.	Bldg. rubble concrete masonry dam at Albion Lake reservoir, 60 ft. high; 13,000 cu. yds. rubble concrete, excav., gate houses, valves, etc.; $5,000 cert. check; $25,000 bond	Fred R. Dungan, City Engineer.
Georgia	Atlanta	July 19	Bldg. 2 coagulating basins and two towers	W. Z. Smith, Gen. Mgr. Wtr. Comrs.
South Dakota	Ft. Meade	July 20, 10 a.m.	Bldg. concrete dam, spillway, etc	Constructing Quartermaster.
Michigan	Grand Rapids	July 21, 8 p.m.	Installing pumping machinery	S. A. Freshney, Sec'y Bd. Pub. Wks.
New York	Plattsburgh	July 22, 7 p.m.	Bldg. dam on West Brook	A. G. Senegal, Mayor.
South Carolina	Ft. Moultrie	July 29	Bldg. 3 rein.-conc. reservoirs and water distributing system	Constructing Quartermaster.
Georgia	Sylvania	Aug. 1	Bldg. water works	A. B. Lovett, Mayor.
			BRIDGES	
California	Oceanside	July 8	Bldg. 600 ft. concrete or wooden bridge	County Bd. Super., San Diego.
Indiana	Bluffton	July 8	Bldg. 7 county bridges	O. D. Garrett, County Auditor.
Indiana	Lebanon	July 8, 1 p.m.	Bldg. 7 county bridges	B. F. Herdrich, County Auditor.
Ohio	Toledo	July 8, 10 a.m.	Making several bridge improvements	C. J. Sanzenbacher, County Auditor.
Ohio	Cincinnati	July 8, noon	Bldg concrete bridge and widening road	Fred. Dreihs Clk. County Comrs.
South Dakota	Fairfax	July 9	Bldg. and repairing bridges for one year	L. Trautman, County Auditor.
Montana	Ft. Benton	July 11, 2 p.m.	Bldg. 4 combination or steel bridges, two 200 ft. long, 80 and 51 ft., all 18 ft. wide; concrete piers, etc	W. R. Leet, County Clerk.
North Carolina	Laurinburg	July 11	Bldg. 7 rein.-conc. arch bridges	M. L. John, of Road Commission.
Arkansas	Little Rock	July 11	Bldg. 2 concrete culverts	F. M. Oliver, Clk. Bd. Pub. Affairs
Montana	Bozeman	July 11, 10 a.m.	Bldg. Manhattan bridge	W. E. Brandenburg, County Clerk.
New York	Binghamton	July 11	Bldg. concr. or iron bridge over Chenango River	County Commissioners.
Ohio	Delaware	July 11, noon	Bldg. 2 abutments	W. W. Bodurtha, County Auditor.
California	Visalia	July 12	Bldg. rein. concrete conduit and bridges; cost, $80,000	Morve L. Weaver, City Engineer.
Ohio	Columbus	July 14	Bldg. bridge over Grant river	Board County Commissioners.
Indiana	Jeffersonville	July 16, 11 a.m.	Bldg. bridge over Logan creek	C. W. Kelly, Co. Engineer.
Illinois	Freeport	July 18	Bldg. conc. culvert, 9 ft. diam., 300 ft. long	J. A. R. Daniels, City Engineer.
Georgia	Columbus	July 18, noon	Bldg. concrete-steel arch bridge over river at Dinghlan st	W. C. Campbell, Supt. Pub. Wks.
Ohio	Hamilton	July 19, 10 a.m.	Bldg. bridge over Elk creek	J. E. Brate, County Auditor.
Pennsylvania	Somerset	July 20, 2 p.m.	Bldg 4 county bridges	County Commissioners.
South Carolina	Greenville	July 20	Bldg. rein. concr. bridge	H. S. Jaudon, Box 1582, Savannah Engineer.
Maine	Solon	July 23, 2 p.m.	Sub-structure for bridge over Kennebec River	G. D. Perkins, Chm. Bldg. Co.
Virginia	Leesburg	July 25	Bldg. rein. concrete or iron bridge across "The Dutchman"; 55-ft. span, 12-ft. roadway, and abutments; also for bldg. bridge over Little River, near Aldie	J. J. Crim, Chm. Co. Comrs.
Louisiana	Alexandria	July 28	Building creosoted timber frame protection fender on piles	Ira W. Sylvester, Consulting Engr.
			LIGHTING AND POWER	
Virginia	Bedford City	July 13, noon	Installing hydroelectric plant on James River	F. R. Weller, Washington, D.C., Eng.
South Carolina	Charleston	July 16, 11 a.m.	Furn. two 100-k.w. synchronous motor generator sets, one 2 1-2 k.w. booster set and switchboard controlling equipment at navy yard	Bureau of Docks, Navy Dept., Wash.
Georgia	Sylvania	Aug. 1	Bldg. electric light plant	A. B. Lovett, Mayor.
			MISCELLANEOUS	
Kansas	Hutchinson	July 8, 3 p.m.	Sprinkling 6th ave., one year	Ed. Metz, City Clerk.
Texas	Lubbock	July 11, 10 a.m.	Bldg. $14,000 jail	J. R. McGee, County Judge.
Pennsylvania	Johnstown	July 11, 8 p.m.	Furnishing fire hose, including couplings	L. M. Keller, Fire Chief.
Minnesota	St. Paul	July 11	Excavating and building foundation Service Bldg., City Hospital; C. H. Johnston, Architect	N. P. Langford, Chm. Bd. Control.
North Carolina	Greenville	July 11	Erecting court house and jail	J. P. Quinerly, Chm. Co. Comrs.
Minnesota	Detroit	July 12, noon	Bldg. jail; C. E. Bell, Tyrie & Chapman, Archts	E. W. Davis, Chm. Co. Comrs.
California	Visalia	July 12	Bldg. rein. concrete conduit and bridges; cost, $80,000	M. J. Byrnes, City Clerk.
California	Oakland	July 13, 10 a.m.	Erecting tower for fire-alarm and police telegraph system	W. B. Fawcett, Sec'y Bd. Pub. W.
Ohio	Creston	July 14, noon	Furn. current for electric light system; also install. street lighting system; 2 jobs	C. A. Tenney, Village Clerk.
California	Hanford	July 14	Erecting hospital at fair grounds	F. Cunningham, Clk. Bd. Superv.
New Jersey	Long Branch	July 18, 7:30 p.m.	Furn. auto hose wagon, cap. 1,000 ft. 2 1-2-in hose; also com. hose and chemical wagon, same capacity	B. B. Newcomb, City Clerk.
Nebraska	Omaha	July 19, 2 p.m.	Furn. one motor-driven hose and chemical engine; one 5-passenger auto for chief and one city service horse-drawn truck.	D. B. Butler, City Clerk.
Louisiana	Alexandria	July 28	Building creosoted timber frame protection work and bridge fender on pile foundation	I. W. Sylvester, Consult. Engr.
Mississippi	Natchez	Aug. 3	Sprinkling streets	W. G. Benbrook, Mayor.

STREET IMPROVEMENTS

Mobile, Ala.—Board of Public Works will pave 50-foot roadway on Broad st. with creosoted wood blocks.

Chico, Cal.—Bids will be received July 27 for $19,934.97 street bonds.

Long Beach, Cal.—Bids will soon be received for paving, constructing cement and brick gutters, culverts and sidewalks on eleven streets.

San Anselmo, Cal.—City has decided to improve number of main streets; cost $43,000.

San Diego, Cal.—S. B. Fletcher, County Highway Commissioner, has prepared plans and will receive bids for constructing Tia Juana and Coroviado Boulevard systems.

Turlock, Cal.—Paving of Broadway, Market and Main sts. is being considered.

New Britain, Conn.—Extension of permanent pavement, cost about $5,000, is being considered.

Washington, D. C.—Congress has passed the bill providing for extension of Massachusetts ave.; cost about $60,000.

Augusta, Ga.—Jas. T. Gardiner, Clerk Commissioners of Roads and Revenues, Richmond County, desires addresses of manufacturers of large-sized gasoline road rollers and of 1½-ton road rollers drawn by horse-power.

Decatur, Ill.—Plans are being made by A. B. Alexander, City Engineer, to pave Broadway st.

Greenville, Ill.—Bond County will build concrete road at cost of $4,500.

Springfield, Ill.—Paving of Pasfield st. with mineral rubber, cost $13,488, is being considered.

Crawfordsville, Ind.—Bids will be received by Fred B. Robinson, City Clerk, for paving four streets.

Evansville, Ind.—Board of Public Works has ordered improvement of Chandler ave.

Indianapolis, Ind.—Plans and specifications have been ordered for improvement of the following streets: Newton ave., with gravel roadway and curbing; Northwestern ave., with brick; Washington blvd., wooden block, cement, curb, and Gladstone ave. with brick; Board of Public Works will soon receive bids for paving New Jersey st. with asphalt, Linwood ave. with bituminous macadam and cement walks in Laurel, 16th and Ohio sts.

Marion, Ind.—Board of Public Works has decided to pave W. Second st.; improvement of Adams st. is being considered.

Muncie, Ind.—Board of Works has decided to construct combined cement curb and gutter on East Adams st., and has ordered plans prepared for paving S. Council st. with brick; plans have been approved for improvement of two streets.

Albia, Ia.—Council has ordered construction of five additional blocks of paving.

Bloomfield, Ia.—Council has adopted resolutions for paving around and approaches to square.

Centerville, Ia.—Paving of portions of five streets is being considered.

Clinton, Ia.—Council will at once ask bids for 16,000 ft. of walk construction.

Leavenworth, Kan.—Paving of Ottawa st. is being urged.

Covington, La.—City is considering paving street and sidewalks on Silver st.—F. G. Marrers, Mayor.

Crowley, La.—City has decided to construct 15 miles of cement walks; bids have been asked.

Annapolis, Md.—Citizens have voted $24,000 bonds for improvements; four streets will be paved.

Swampscott, Mass.—Town has voted $1,000 for street improvements.—M. D. Porter, Town Clerk.

Detroit, Mich.—City Engineer Robert H. McCormick has about prepared plans for repaving with asphalt Winder st., Berry ave., 4th ave., Mack ave., 8th st., Maple and Napoleon sts., cost $79,000, and Beaubien st., with creosoted blocks, $6,000.

Monroe, Mich.—City will expend about $90,000 in street paving; material not yet decided upon.—J. W. White, Engineer.

Saginaw, Mich.—Citizens will vote on $50,000 sidewalk bonds.—L. Pearson, Chairman Committee.

Bemidji, Minn.—Citizens have voted $12,000 bonds for street improvements.

Hartland, Minn.—County Commissioners have decided to construct road from Bath to Hartland Township.

Thief River Falls, Minn.—Council has authorized construction of sidewalks.

Aberdeen, Miss.—Monroe County Supervisors will issue bonds for road construction.

Kansas City, Mo.—Council has passed ordinances as follows: five for changing grade on streets; four for grading streets; thirty-one for establishing grades; also ordinance for oiling Wornall Road.

St. Joseph, Mo.—Board of Public Works is considering improvement of four streets; cost $25,000; also has recommended grading of Pattee st.

St. Louis, Mo.—Curtis Hill, State Highway Engineer, and J. H. Curran, Immigration Commissioner, are planning to build highway to connect St. Louis with Springfield.

Billings, Mont.—Yellowstone County Commissioners have decided to construct 30 m. of roads.—A. S. Shannon, city, can be addressed.

Fremont, Neb.—Commercial Club is interested in construction of road west of city at cost of $2,300.

Hastings, Neb.—Plans are being prepared for paving in two paving districts with tarvia and brick.

Nebraska City, Neb.—County Commissioners are considering construction of 8 m. of brick roads.

Trenton, N. J.—Council has passed ordinances providing for $15,000 repaving bonds and $10,000 bonds for constructing cement sidewalks.

Buffalo, N. Y.—Mayor Fuhrmann has recommended that Council secure cost of installing municipal asphalt repair plant.

Hudson, N. Y.—Estimates are being prepared for vit, brick paving on Warren st.

Niagara Falls, N. Y.—Council is considering following street improvements: Resurfacing Buffalo ave., $24,672; paving Highland Court, $2,019; sidewalks, $21,102.

Saratoga, N. Y.—Governor Hughes has signed the bill for building by State of a highway from Saratoga to Schenectady.

Bellaire, O.—Council has decided to grade and pave Cherry Alley.

East Liverpool, O.—Council has decided to construct sidewalks on Washington ave.

Girard, O.—Council has passed ordinances for construction of sidewalks on number of streets.

Hamilton, O.—Citizens have voted $260,000 bonds for street intersections, sewers, water, gas and electric light extensions.

Youngstown, O.—Council has passed ordinances for grading two streets, paving Oak st. and repaving Royen ave.

Kingfisher, Okla.—City is experimenting with crude oil on its business streets; should the experiments prove successful, all city's streets will be oiled.

Cottage Grove, Ore.—Council has passed ordinance asking for bids for bitulithic pavement on Main and 4th sts., which amounts to about 17,000 yds.

Springfield, Ore.—Citizens will vote on $50,000 bonds; streets will be improved.

Erie, Pa.—Council is considering repaving of Twentieth st.

Freeland, Pa.—Council has decided to macadamize Carbon st.

Hillside, Pa.—Local Improvement Society will request Township Commissioners to oil Germantown and Willow Grove pike.

Philadelphia, Pa.—Chief Webster of Bureau of Surveys has prepared plans for construction of 7-mile boulevard to Roxborough.

Pittsburg, Pa.—Council has passed ordinance for widening Diamond and two other streets.

Gleason, Tenn.—Citizens have voted $6,000 sidewalk bonds.

Munday, Tex.—Citizens will vote on bonds for street improvements.

Paris, Tex.—Council has ordered bids advertised for paving Graham st.

Lynchburg, Va.—Council has decided to pave portion of Rivermont ave.: cost $130,000.

Portsmouth, Va.—Norfolk County Board of Supervisors is considering $3,500 appropriation for road in Tanners Creek District.

Aberdeen, Wash.—Council has passed ordinance for grading Hume st.; cost $11,900.

Chehalis, Wash.—City has plans under way for street paving to cost $200,000.

Olympia, Wash.—State Highway Commission has rejected all bids received on Road No. 77 in Clark County.

Seattle, Wash.—City Engineer R. H. Thomson has estimated cost of concrete walks at total cost of $137,299; paving with asphalt Beacon ave. at $93,000 and with brick 4th ave., $75,000; University st., asphalt, $28,000; E. John st., asphalt, $2,500; 2d ave. S., repaving, asphalt, $5,200; Belvidere ave., grading, $46,600; 45th ave., S. W., graveling, $81,300; W. Oregon st., graveling, $43,000; 20th ave., N. E., concrete walk, $20,200.

Snohomish, Wash.—Estimate will be prepared of cost of grading, sidewalking, curbing and paving with asphalt portions of four streets.

Spokane, Wash.—State will expend $1,000,000 on 50 State aided roads this year.—H. L. Bowlby, Road Commissioner.

Spokane, Wash.—Plans have been prepared for paving 2d ave. with concrete; cost $25,400.

Martinsburg, W. Va.—Bids are invited on several thousand cubic yards earth and rock excavation and several thousand sq. yds. macadam pavements, concrete curbs and gutters and cement sidewalks. John W. Stewart or N. T. Frame, American Horticultural Distributing Co., can be addressed.

Wheeling, W. Va.—Council has accepted plans for paving Main st.; cost $2,500; bids will soon be asked.

Baraboo, Wis.—Council has decided to macadamize Broadway and Third ave.

Suring, Wis.—Town Board is planning highway, to be laid out between Sections 2 and 10 and 2 and 3.

CONTRACTS AWARDED

Montgomery, Ala.—Paving with asphalt, cost about $50,000, to Southern Paving Construction Co., Chattanooga, Tenn.

Little Rock, Ark.—Paving W. 6th st., asphalt, to M. D. L. Cook Construction Co., $1.87 per sq. yd.

Los Angeles, Cal.—Grading, graveling and constructing cement curb and gutter on Gardner st., to L. N. Davies, $12,646.

New Britain, Conn.—Laying 24,000 sq. yd. bitulithic paving on concrete foundation to Warren Bros. Co., 59 Temple pl., Boston, Mass., $2.42 per sq. yd. with 1c. additional per cu. yd. for every 100 feet haul in excess of 2,500 ft.

Bloomington, Ill.—Resurfacing with asphalt 10,000 yds. of old brick pavement to Andrews Asphalt Paving Co., Hamilton, O., $1.28 per sq. yd.

Marshall, Ill.—Brick paving, 11,800 sq. yds,. to Geo. T. Miller, Lebanon, Ind., $19,383.

Columbus, Ind.—Paving Third st. to Ewing Shields, Seymour, $1.48 per sq. yd. outside of railroad tracks and $1.98 per sq. yd. inside railroad tracks, Medora brick; total $11,253.

Muncie, Ind.—Combined cement curb and gutter on 6th st., to Wm. Birch, 48½c. per lin. ft.

Vincennes, Ind.—Improving Tewalt ave. to Frank Jordan: Excavation, 10c.; embankment, 12½c.; sidewalk, 8c.; curbing, 37c.; gravel, 75c., and alley crossings, 9c.

Albia, Ia.—Paving 9,410 sq. yds. brick paving to Magden & Sheely, Des Moines, $2.07; curb or gutter, 62c. per lin. ft.; excav., 44c.; total cost, $24,642.50.—C. C. Atchison, City Clerk.

Fort Dodge, Ia.—Cement paving, to St. James Tile Manufacturing Co., St. James, Minn; $1.62 per sq. yd., totaling $47,790, with 29,500 sq. yds. in all; extra grading brings the total contract to $50,000, including 6,200 lin. ft. of curb and gutter.

Frostburg, Md.—Paving to Fuller Bros., Wood st., city, $11,000.

Lawrence, Mass.—Paving Broadway, 33,040 sq. yds., to Philip Holland, city, $2.91 per sq. yd., with Hassam pavement on concrete base; other bidders: M. J. McGauley, Boston, $3.10; J. Wagenbach, Lawrence, $3.10; J. B. O'Rourke & Co., Boston, $3.25; Coleman Bros., Boston, $3.15; Hassam Paving Co., Worcester, $2.94; Lawrence Granite Co., Lawrence, $2.99.

Vicksburg, Miss.—Paving two streets with brick and asphalt to Southern Paving & Construction Co., Chattanooga, Tenn., at $1.89 per sq. yd.

St. Joseph, Mo.—Paving Higland ave. with Hassam to Rackliffe & Gibson, $1.45 per sq. yd.; Calhoun st. with mineral rubber to Metropolitan Construction Co., $1.75 per sq. yd.; carload No. 2 asphaltum road oil to Standard Oil Co.

Freehold, N. J.—Stoning roadbed and ways, paving gutters and curbing Main and South sts. with macadam to Price & Hafeman, Red Bank, $9,641.

Trenton, N. J.—Building Yardville-Allentown road, to T. J. McGovern, city, $33,093.

Woodbury, N. J.—Building new roads from Woodbury to Clarksboro and from Swedesboro to Auburn, Filbert Paving & Construction Co., 15th and Chestnut sts., Phila., $103,851.

Albany, N. Y.—Paving to John M. Holle, $5,168.

Repairing asphalt roadway, four avenues, to Barber Asphalt Paving Co., 30 Church st., $5,678.50.

Brooklyn, N. Y.—Furnishing emulsifying road sprinkling oil, Prospect Park, to Standard Oil Co., 26 Broadway, $3,375.

New York, N. Y.—Hudson River road gravel for parks and parkways, Brooklyn and Queens, to Robert Carter & Co., 551 Prospect place, Brooklyn, $15,825.60.

New York, N. Y.—Repairs to asphalt roadway pavements to Barber Asphalt Paving Co., 30 Church st., city, $6,986.

Pelham Manor, N. Y.—Reconstructing 6,200 ft. of macadam streets with stone gutters to Smith Bros., North Pelham, $9,612.

Albemarle, N. C.—Granolithic sidewalks to G. R. Martin, Salisbury; cost $4,000. J. M. Bandy, Greensboro, Engineer in Charge; material purchased.

Ashland, O.—Roads to D. A. Phillips, city, as follows: Mifflin road, .5 mile in length, $2,820; Perryville road, .67 mile in length, $3,527; Orange road, .61 mile in length, $3,376; Troy road, .78 mile in length, $2,366; Wooster road, 1.14 miles in length, $5,987.

Athens, O.—Second section Athens-Chauncey paved State road to W. S. Bower, city, $13,197.

Cambridge, O.—Grading and macadamizing .58 mile of road in Millwood Township.

to A. T. Warwick, Barnesville, $4,699, waterbound macadam.

Canton, O.—Curbing and constructing 18,500 sq. ft. stone flag walk on Sherrick ave., $5,273 and 8,110 sq. ft. on Tyler st., $3,383, to P. Hahn & Son, city; to Harry Corl, city, for 8,900 sq. ft. flag sidewalk on Shorb st., $4,406.—P. H. Weber, City Engineer.

Carrollton, O.—Paving six streets to Cass & Meyer, Wheeling, W. Va., $37,602.

St. Clairsville, O.—Grading and macadamizing 1.96 miles of road in Flushing Township to Petrie, Artnur & Turner, of Logan, $15,300. Other bidders: J. P. Warnock, Cadiz, $15,900; Moore & Strahl, St. Clairsville, $16,869; Rosser & Maloney, Bellaire, $16,000; Dixon & Pickett, Martin's Ferry, $16,370.

Butler, Pa.—Paving Monroe and South sts., Du Bois and Butler brick, to John Schaffner; Fifth ave. with Porter brick, to Tony Morelli.

Conshohocken, Pa.—Macadamizing Church Road to Ambler-Davis Co., at $19,974.

Erie, Pa.—Paving East 14th st. with Bessemer paving block, to F. J. Eichenlaub, $1.05 per yd., concrete base 50c., artificial curbing 35c. per ft.; W. 7th st. with sheet asphalt, class B, to Mayer Bros. Construction Co., $1 per yd., 46c. for concrete base; East 3d st., to McCormack & Co., Bessemer block, artificial curb, $1.52 per yd.

Exeter, Pa.—Paving 8,500 sq. yds. with Mack brick to McConville & Fitzpatrick, Pittston, $21,779.

Gallitzin, Pa.—Paving with Clymer brick to A. Anstead & Co., city, $20,000.

Pittsburg, Pa.—Building Perrysville extension No. 1, to Foley Bros., $39,753.65; other bidders, J. F. Howley, $42,017.82; Ott Bros., $45,324.02; Henry Grabing, $46,776.80; Turtle Creek and Munroeville road, to W. E. Howley, $22,378.55.; other bidders, Foley Bros., $26,688.76; R. H. Cunningham, $26,893.63; McLaughlin Contracting Co., $31,676.40; Henry Hileman, $32,809.02; Neelen & Daley, $34,296.41; J. F. Howley, $37,293; A. Ancaroni, $39,525.65; A. G. Rothey & Co., $41,974.40.

Tyrone, Pa.—Paving Logan ave. to Central Construction & Supply Co., Harrisburg; paving is to be done with Clearfield Clay Working Company No. 1 brick; $9,447.05; $1.96½ per sq. yd.

Chattanooga, Tenn.—Paving Chestnut st. with asphalt, to West Construction Co.; Main st., brick, to Noll Construction Co.; Wyatt, asphalt macadam, to West Construction Co.

Dallas, Tex.—Bitulithic paving, 9,227 sq. yds., to Texas Bitulithic Co., city.

El Paso, Tex.—Bitulithic paving, 35,000 sq. yds., to Texas Bitulithic Co., Dallas.

North Yakima, Wash.—Paving as follows: to Independent Asphalt Paving Co., Seattle, asphalt on Naches ave. and A st., $129,013; to Anderson Construction Co., Tacoma, with brick on Chestnut st. and A st., $26,226 and $28,411, respectively.

Olympia, Wash.—Three sections of State Road No. 5, in Lewis County, to Young & Landes, of Chehalis; for State Road No. 2, in Stevens County, to J. M. Noble & Co., of Spokane; and for State Road No. 78, in King County, to F. Kerr Folliott, of Seattle; bids rejected on State Road No. 77, in Clarke County.

Seattle, Wash.—Paving and walks: Grading and concrete walk on N. Broadway, to N. D. Johnson, $17,878; paving 4th ave., to Holt & Jeffery, $86,447; asphalt paving on 20th ave. S., to Independent Asphalt Paving Co., $52,649; concrete walks on N. 46th st., to Great Western Fuel Co., $9,728.

Madison, Wis.—Improving University ave., to The Andrews Asphalt Paving Co., Hamilton, O., $44,662.

Superior, Wis.—Paving John ave. with brick, to Walsh & Johnson, low bidders, $26,686.55.

Welland, Ont., Can.—Constructing macadam road between Niagara Falls and Bridgeburg: Two sections to Cook & Menzie, Niagara Falls; remainder to H. Campaigne, Niagara Falls; total cost, $95,000.

BIDS RECEIVED

New Albany, Ind.—Improvement of West Market st., W. O. Sweeney, Jeffersonville, lowest bidder, on vitrified brick pavement, $4.71 to $4.91 foot, according to quality of material used.

Omaha, Neb.—Bids received June 20 for grading streets and alleys: Dodge, Thirty-sixth to Thirty-eighth, no bids; alley between Thirty-ninth and Fortieth, from Cass to Chicago, A. J. Stanley, 21c. per cu. yd.; Turner & Kracht, 35c. per cu. yd.; Chicago, P. A. Peterson, 25c.; Johnson Bros. & Co., 20c.; A. J. Stanley, 18 1-2c.; Turner & Kracht, 17c.

Paterson, N. J.—Following are lowest bids opened for paving: (a) Park ave. and (b) River st., Geo. McDonald, (a) with asphalt, $75,688, (b) with asphalt, $16,051; Hassam Paving Co. (a) on Hassam pavement, $60,095, and (b) with same material, $14,914.

SEWERAGE

Uniontown, Ala.—Preliminary survey for system of sewerage is being made by Prof. Keahey, of State University.

Los Gatos, Cal.—Mayor G. W. Turner is urging installation of adequate sewerage system.

Tulare, Cal.—Citizens have voted $80,000 bonds for constructing sewers.—Haviland & Tibbitts, of Oakland, Engineers.

Yreka, Cal.—Construction of sewer is being considered.

St. Augustine, Fla.—Citizens will vote Nov. 22 on $100,000 bond issue for sewer system. W. W. Lyon, Engineer.

White Springs, Fla.—Citizens will vote July 12 on $20,000 bonds for construction of water-works and sewer system.

Dalton, Ga.—Council has selected the H. S. Jaudon Engineering Co., Savannah, to prepare plans for improvements to sewer system.

Joliet, Ill.—Improvement of sewer in South Ottawa st. is being considered.

Upper Alton, Ill.—Survey is being made for establishment of Sewer District No. 2.

Evansville, Ind.—Bids will soon be received for construction of sewer in Louisiana st.

Marion, Ind.—Board of Public Works is considering construction of Stephenson st. general sewer.

Michigan City, Ind.—Board of Public Works has accepted plans and specifications for the construction of proposed Holliday st. draining district, consisting of a 12-inch drain; cost $2,000; plans and specifications have also been submitted by Engineer Miles for construction of proposed local sewer in Holliday st; cost $700.

New Castle, Ind.—Plans will be prepared for converting into arch sewer open stream running through city; cost about $40,000.

Eagle Grove, Ia.—Council has decided to construct sewer in North Iowa ave.

Atchison, Kan.—Bids will be asked in near future for constructing sanitary and storm sewers in District X; cost $44,000.—S. C. McQuary, City Engineer.

Kinsley, Kan.—Installation of sewer is being considered.

Lawrence, Mass.—Board of Aldermen has passed $75,000 sewer loan for construction of Ward 5 trunk sewer.

Dexter, Mo.—Fuller-Coult Co., Chemical Bldg., St. Louis, has been selected as engineer of proposed sewer system.

Joplin, Mo.—Council has ordered construction of sanitary sewer in Dist. 24.

Kansas City, Mo.—Council has passed ordinances for constructing district sewers in Divisions 158 and 267.

Montgomery, Mo.—Fuller-Coult Co., Chemical Bldg., St. Louis, has been selected as engineer for proposed sewer system.

St. Joseph, Mo.—Council is considering construction of sewer in Dist. 114; cost $1,331.

Haddon Heights, N. J.—Citizens have voted $44,000 bonds for installation of sewerage system and disposal plant.

East Aurora, N. Y.—Construction of a sewer system, cost about $125,000, is being considered.

Niagara Falls, N. Y.—Council has approved recommendations for $111,000 worth of sewers.

Yorkville, N. Y.—Plans will be prepared for construction of sewers; engineer will be retained.

Amherst, O.—City Engineer Chapin has estimated cost of sewer system at $30,000.

Cincinnati, O.—Cost of constructing sewer in University Court has been estimated at $2,830.

Delaware, O.—Council has decided to construct sewer in Campbell st.

Hamilton, O.—Citizens have voted $260,000 bonds for improvements, including sewers.

Jackson, O.—Plans have been prepared by Engineer W. H. Monahan, Jr., for sewage disposal plant and four lateral sewers.

Lancaster, O.—City Engineer John N. Wolfe has estimated cost of constructing sewer on West Side at $4,286.

Salem, O.—City is considering construction of sewers on four streets; cost $18,000.

Tippecanoe, O.—J. W. Dowley, Troy, will estimate cost of construction of sewer in Broadway.

Mangum, Okla.—Citizens have voted bonds for sewerage extension.

Pendleton, Ore.—Council is considering installation of sewer extension in west end of town.

Erie, Pa.—Council has decided to construct second and third sections of main intercepting sewer at cost of $30,000.

Monaca, Pa.—City has decided to extend present sewer system.—C. M. Wagner, President of Council.

Somerset, Pa.—City desires plans and specifications and estimate of cost of sewage disposal plant.—Chas. I. Shaver, Secretary of Council.

Timmonsville, S. C.—Plans are being prepared by Engineer T. N. Johnston, Florence, for laying four miles of sewers.

Madison, S. D.—Citizens are considering election on $100,000 bonds for installation of sewer system.

Beaumont, Tex.—Bids will soon be asked by Council for constructing sewer system; cost about $50,000.

Front Royal, Va.—City is considering installation of sewer system.

Prosser, Wash.—Council has passed ordinance adopting plans for sewer system; cost $16,000.

Tacoma, Wash.—Council has passed ordinances for construction of storm sewers on four streets.

Green Bay, Wis.—Council has decided to construct sewers on two streets.

Kenosha, Wis.—Council has adopted plans for trunk sewer two miles long; cost $150,000.

Oshkosh, Wis.—Council has decided to construct sewer in Minnesota st.—Geo. Randall, City Engineer.

Wausau, Wis.—City is considering construction of about 2,000 lin. ft. of vit. pipe sewers in seven streets.—B. C. Gowen, City Engineer.

West Milwaukee, Wis.—Plans are being prepared by Engineer Gus A. Geiger for construction of sewer system.

Vancouver, B. C., Can.—City is considering construction of B st. lateral sewer; cost $7,000.—H. H. Lotter, Engineer.

CONTRACTS AWARDED

Hartford, Conn.—Sewer, Hillside ave., to O'Neil Bros. & Nero, $14,409.50; to Louis Petrossi, Cabot st. and Homestead ave., $7,260.25; to Hartford Paving and Construction Co., Park st., $3,270.25; to Louis Rogers, Holcomb st., $588.80.

Grangeville, Ida.—Sewer system and septic tank, to Triber & Moore, Tacoma, $39,000; other bidders, John Fife, Spokane, $53,000; John F. Costello, Spokane, $51,000; W. A. Smith, Lewiston, $49,317.85; J. Broad, Spokane, $47,695.

St. Maries, Ida.—Trunk and lateral sewers to Moore & Washtop, Spokane, Wash., about $8,000.

Marseilles, Ill.—Constructing trunk sewer to Green & Son, Ottawa, $26,748.

Rock Island, Ill.—Sewer to P. F. Trenkenschuh, about $1,712.

Evansville, Ind.—Constructing sewer to Megular Construction Co.

Creston, Ia.—Sewer work to Geo. Auracher.

Waterloo, Ia.—Constructing sewers in various streets to Dearborn & Jackson.

Baltimore, Md.—Disposal plant to Rothrock & Co., $4,475.

Boston, Mass.—Constructing surface water drains in Framingham, Natick and Wayland as follows: to Henry Spinach Contracting Co., Waterbury, Conn., $30,981. Other bidders: Coleman Bros., Chelsea, Mass., $31,298; S. Canola, Boston, Mass., $32,238; And. M. Cusack, Boston, Mass., $32,311; John J. Falvey, Somerville, Mass., $33,228; Michael M. Russo, Boston, Mass., $33,486; Bruno & Petitti, Boston, Mass., $33,667. Successful bidder, as follows: 5,800 cu. yds. earth excav. for open channel, $1.10; 8,100 cu. yds. earth excav. for covered drains, 90 cts.; 3,200 cu. yds. borrowed earth, 30 cts.; 5 cu. yds. rock excav. $10; 1,000 cu. yds. concrete masonry, $7; 960 lin. ft. 24-in. vitr. clay pipe, $1.10; 1,000 lin. ft. 18-in. vitr. clay pipe, $1; 330 lin. ft. 12-in. vitr. clay pipe,; 50 cts.; 50 M. ft. spruce lumber in place, $33; 2,900 sq. yds. stone paving, $1.50; 600 cu. yds. gravel for slopes of open channel, $1.50; 9 manholes, $40; 12 catch basins, $55.

Albert Lea, Minn.—Lateral sewers to Illstrup & Olson, of Minneapolis, $7,195.

Crete, Neb.—Constructing the sewer system to Lana Constr. Co., $37,047; about 19,071 lin. ft. 8-in., 10,376 lin. ft. 10-in. 5,776 lin. ft. 12-in. and 4,983 lin. ft. 30-in. pipe sewers. Other bidders: J. J. Hanighen, of Omaha, $46,174; Inter-Mountain Bridge & Constr. Co., Tecumseh, Neb., $42,370; Edw. Donahue & J. Peterson, Omaha, $44,774; Katz-Craig Constr. Co., Omaha, $45,342.

Fort Totten, N. Y.—Constructing sewer extension to camp sites at post, to Peace Bros., Main st., Flushing, N. Y., 40c. per lin. ft.

Lebanon, O.—Sewers, 900 ft., to Price & Hurley, Marion, O., $5,425.

Middletown, O.—Building trunk sewer to Garver Constr. Co., Hamilton, $64,146.

Avonmore, Pa.—Intercepting sewer, to Drister Construction Co., Tarentum, $2,861.

Bridgewater, S. D.—Building sewer system to Wm. Welsh.

Seattle, Wash.—Sewers on First ave. So. to Dicken & Rightmire, $15,893.

BIDS RECEIVED

Hartford, Conn.—East side interceptor, George Phillips, Dorchester, Mass., 250 days, $162,618; Hagarty & Drummond, New York, 400 days, $208,239; Metropolitan Contracting Co., Boston, Mass., 175 days, $176,637; Hartford Paving and Construction Co., Hartford, $158,161; Edward Balf Co., Hartford, $209,196.

Freehold, N. J.—Sewerage extensions and pumping stations; proposed work consists of approximately 18,000 ft. of 8-in. sewers, 3,400 ft. of 4-in. iron pipe force mains, three pumping stations, not including houses and machinery, also manholes, lampholes, flush tanks and other appurtenances; Arthur K. Hillpot, Red Bank, N. J., $18,915; Edmund F. Saxton, 114 Liberty st., New York, $19,383; D'Amato & Stefanelli, Newark, N. J., $22,583; Liddle & Pfeiffer, Perth Amboy, N. J., $23,482; Denise & Buch, Freehold, $25,590; William and John Smith and S. L. Bartholomew, Asbury Park, N. J., $28,298; Martin & Miller, Roselle Park, N. J., $28,627; McGovern Contracting Co., Trenton, N. J., $29,420.—Waring, Chapman & Farquhar, 874 Broadway, New York, Engineers.

WATER SUPPLY

Anniston, Ala.—Citizens have defeated proposition to issue $100,000 bonds to purchase plant of Anniston Water Supply Co.

Conway, Ark.—City will install water works system, cost $75,000; eleven miles of main will be laid.

Eureka Springs, Ark.—City will improve water works; cost $50,000.—W. H. Elliott, City Engineer.

Imboden, Ark.—Mrs. Jennie Nash, Jonesboro, has purchased water and electric light plant and will make improvements and operate.

Ola, Ark.—City is considering water works question; to be owned by city or operated under franchise granted by city.—M. L. Martin, Mayor.

Paragould, Ark.—Improvement District No. 2 will expend $15,000 to construct water works, including 300,000-gallon reservoir and water main.—C. E. Waddell, Engineer.

Wilmington, Del.—Town Commissioners of Elsmere have offered to take up with Wilmington Water Department supplying of water to Elsmere.

Clearwater, Fla.—City is preparing to construct water works.

Tallahassee, Fla.—Bids will be received until July 21 for $15,000 bonds, issued for improving water works, electric and gas plants.—A. H. Williams, City Clerk.

White Springs, Fla.—Citizens will vote July 12 on $20,000 of bonds for construction of water works and sewer system.

Cairo, Ga.—Bids will be received for $15,000 water and electric light extension bonds.—R. C. Bell, City Attorney.

Comer, Ga.—City is considering construction of water works. C. W. Hackett is making surveys.

Dahlonega, Ga.—B. R. Meaders & Sons secured franchise to lay pipes for furnishing water; will install hydraulic ram and pump water into cistern.

Jonesboro, Ga.—Election on construction of water works system is being considered.

Lafayette, Ga.—J. B. McCrary & Co., of Atlanta, have been selected to prepare plans for a municipal electric light plant and water works.

Kendrick, Ida.—Citizens will vote July 11 on $10,000 bonds for water works.

Galesburg, Ill.—Water Commissioner has been authorized by the City Council to ask bids on improvements to water works plant, which will include a Franklin flywheel pump, capacity 6,000,000 gal.; centrifugal pumps, two 350 hp. boilers with steam pressure of 150 lb. each, etc.

Huntley, Ill.—Council has passed ordinances for water main extensions.

Lewiston, Ill.—City will make improvements and extensions to present water works system. Fuller-Coult Co., Chemical Bldg., St. Louis, Mo., Consulting Engineers.

Laporte, Ind.—Citizens will vote on water question; present supply unfit to use.

Richmond, Ind.—Board of Works is considering extension of water main on Sherman st.

Kewanee, Ia.—Citizens have voted $15,000 bonds to install water system.

Kinsley, Kan.—Citizens will vote on $18,000 bonds for water works extension; 17,750 ft. of pipe will be laid.

Loreauville, La.—City will receive bids on 2,500 ft. iron pipe; also tower tank, 5,000 gallons cap., with 75-ft. foundation.—C. F. Berard, Mayor.

Amesbury, Mass.—City has sold $30,000 water bonds to Geo. A. Fernald & Co.

Attleboro, Mass.—City has awarded $41,000 water bonds to Blodget & Co.

Easthampton, Mass.—Town has appropriated $4,500 for a main in Park St.

Saugus, Mass.—Citizens have voted to extend water system.—H. A. Parker, Town Clerk.

Swampscott, Mass.—Town has voted $2,500 for extension of water mains on Lodge estate.—M. D. Porter, Town Clerk.

Granite Falls, Minn.—Citizens will vote July 12 on $40,000 bonds for improving water power, water works and electric light plant.

St. Joseph, Mo.—Board of Public Works is considering construction of water mains on six streets.

Red Cloud, Neb.—Council has decided to ask for bids for extension of the present water works system in acordance with the recommendation of Dr. Condra of the State university.

Atlantic City, N. J.—Mayor Stoy has signed ordinance calling for $115,000 bond issue for water pumping station at Absecon and new mains in Chelsea.

Bridgeport, N. J.—Property owners are considering water supply question.

Caldwell, N. J.—Installation of water supply is being considered.

Camden, N. J.—Council is considering establishment of filtration plant at Morris Station; cost $350,000; construction of series of high pressure water mains is proposed.

Princeton, N. J.—Princeton Water Co. is planning to lay 10-in. water main down Nassau st.

Lyndonville, N. Y.—Installation of water works system is being considered.

Newburgh, N. Y.—City has sold $158,000 waterworks improvement bonds to N. W. Harris & Co., Pine and William sts., New York City.

Dayton, O.—Council is considering calling election on $600,000 bonds to provide adequate water supply.

Hamilton, O.—Citizens have voted $260,000 bonds for improvements, including water extensions.

Millersburg, O.—Citizens have voted $8,000 bonds for water extension.—Samuel Frank, Jr., can be addressed.

Broken Arrow, Okla.—Bids will be received by P. A. Fox, City Clerk, July 11, for $37,000 water works bonds.

Foraker, Okla.—Citizens have voted $25,000 water bonds.

Mangum, Okla.—Citizens have voted bonds for water works extension.

Muskogee, Okla.—Improvement of water works system is being considered.

Colwyn, Pa.—Installation of water works plant, cost $30,000, is being considered.

Bristol, Tenn.—Construction of pipe line to supply additional water is being considered; cost $100,000.

Alvin, Tex.—Citizens have voted $4,000 waterworks bonds.—F. A. Smith, City Secretary.

Munday, Tex.—Citizens will vote on bonds for installation of system of water works.

San Antonio, Tex.—Bids will be received for installing a centrifugal pump, capacity 1,800 cu. ft. per min., and 3 miles of wooden pipe line. Address T. N. Picnot, P. O. Box 468.

Chuckatuck, Va.—Nansemond County Supervisors have granted Chuckatuck Water

Spencerport, N. Y.—Water works system to C. R. Lewis; Ludlow valves and hydrants specified.—Morrison & Farrington, Inc., Chas. A. Bowman, Engineers, Syracuse, N. Y.

Items	Quantity	Samuel Bonn, Syracuse.	Chas. R. Lewis. Ilion.	Dennison & Co., Rochester.	Burns & McConville, Ogdensburg.	Ripton & Murphy, Rochester.	W.J. Scholl Co., Youngstown, O.	James Herdic Williamsport, Pa.	Frank E. La Valley, Lockport.	Republic Eng. & Cons't, Buffalo.
Trenching and laying 4"....lin. ft.	1,850	.23½	.21	.21	.40	.30	.23	.23	.27	.26
" " 6"..... " "	14,226	.27	.23	.23	.46	.35	.29	.25	.33	.29
" " 8"..... " "	5,850	.32	.28	.28	.47	.38	.36	.26	.43	.33
" " 10"..... " "	3,890	.44	.30	.32	.51	.40	.41	.28	.51	.39
Setting Hydrants.....	44	3.00	2.00	3.75	2.00	2.00	1.25	....	6.00	3.25
" 4" Valves.....	9	1.50	.50	.55	1.50	1.00	1.25	....	1.00	.40
" 6" "	21	1.80	.60	.70	2.00	1.25	1.50	....	1.25	.50
" 8" "	3	2.00	.75	.75	2.50	1.50	1.90	....	1.75	.70
" 10" "	5	3.00	1.00	1.00	3.00	2.00	2.20	....	2.25	.80
C.-I. Pipe Furnishing 4".....tons	20	27.00	26.60	26.00	26.40	26.00	27.00	....	....	27.00
C.-I. Pipe Furnishing 6"-8"-10" "	490	26.00	24.60	24.50	24.35	25.00	25.75	....	....	25.15
Special Castings, Furnishing.....lbs.	20,000	.03	.02½	.02¾	.02½	.02½	.03	....	....	.02¾
Hauling Pipe.....tons	520	.60	.50	.50	1.50	2.00	1.00	.58	....	.85
Furnishing Hydrants.....	44	25.00	23.00	24.00	22.50	25.00	24.75	....	....	22.25
" Valves 4".....	9	7.50	6.50	6.00	6.00	7.00	7.50	....	....	5.95
" " 6".....	21	12.00	10.50	10.00	9.50	11.50	12.00	....	....	9.10
" " 8".....	3	18.50	16.00	16.00	15.00	18.00	17.60	....	....	15.25
" " 10".....	5	26.50	21.00	23.00	22.50	25.00	24.20	....	....	23.75
" " .....boxes	38	3.25	3.00	3.00	2.70	3.00	3.25	....	....	2.90
Concrete.....cu. yds.	70	6.50	6.00	6.90	5.00	6.00	7.00	....	....	6.00
Elevated Tank.....	1	5300.00	5130.00	5100.00	5180.00	5200.00	5400.00	....	....	5400.00
Pumping Station.....	1	800.00	782.00	1375.00	1170.00	1500.00	900.00	....	....	875.00
" Equipment.....	1	2800.00	2560.00	2600.00	2560.00	2660.00	2700.00	....	....	2650.00
Well.....	1	1400.00	1500.00	1625.00	1340.00	720.00	1000.00	....	....	900.00
1 " Extra per ft. below 18'.....	1	125.00	150.00	95.00	125.00	60.00	60.00	....	....	30.00
Earth Excavation.....cu. yds.	500	.50	.50	.50	.36	.50	.30	....	....	.80
Rock " ..... " "	100	2.00	.50	3.00	5.00	2.50	2.00	.80	2.00	2.75
Canal Crossing.....	....	300.00	25.00	250.00	200.00	1000.00	175.00	50.00	..	250.00
Totals.....		35616.67	32348.83 Miami Eng. Gould Pu'p	33745.18	39031.46	37518.35	35424.69	7023.80	10334.23	34771.19

Chas. R. Millar Co., Utica, and U. S. Cast Iron Pipe Co., New York City, bid on pipe and specials only, the former $26.60 for 4-in., $24.60 for 6, 8 and 10-in., and 2½c. for specials, and the latter, $24.95, $23.95, and 2½c.; the Chicago Bridge and Iron Works, New York City, bid $5130 on the elevated tank only.

Valves and Hydrants	Quantity.	R. D. Wood & Co., Phila., Pa.		Eddy Valve Co., Waterford, N. Y.		Rensselaer Mfg. Co., Troy, N. Y.		Ludlow Valve Co., Troy, N. Y.		Fairbanks Co., Buffalo, N. Y.		Darling Pump & Mfg. Co., Williamsp't, Pa.		Kennedy Valve Mfg. Co., Elmira, N. Y.		Root, Neal & Co., Buffalo,	
		Rate		Rate		Rate		Rate		Rate		Rate		Rate		Rate	
Furn. Hyd'ts.....	44	22.50	990.00	23.75	1045.00	23.00	1012.00	22.50	990.00	22.00	968.00	23.50	1034.00	21.45	943.80	22.50	990.00
" Valves 4".....	9	7.00	63.00	7.50	67.50	6.50	58.50	6.60	59.40	5.55	49.95	7.00	63.00	5.90	53.10	6.00	54.00
" " 6".....	21	11.00	231.00	11.50	241.50	10.50	220.50	10.90	228.90	8.75	183.75	11.20	235.20	9.50	199.50	10.00	214.20
" " 8".....	3	15.00	45.00	17.50	52.50	16.00	48.00	16.35	49.05	15.25	45.75	17.00	51.00	15.00	45.00	15.00	45.00
" " 10".....	5	22.00	110.00	24.50	122.50	21.00	105.00	23.50	117.50	24.00	120.00	23.00	115.00	21.25	106.25	20.50	102.50
" " ....boxes	38	2.75	104.50	3.25	123.50	3.00	114.00	2.75	104.50	2.60	98.80	2.75	104.50	2.60	98.80	2.70	102.60
Totals.....			*1543.50		1652.50		*1558.00		1549.35		*1466.25		*1602.70		*1446.45		1508.30
Lump sum.....							1450.00						1550.00				1474.00

*F.O.B. Spencerport

and Sewer Corp. franchise to install water system. County Treasurer Dr. G. D. Butts is interested.

Tacoma, Wash.—Council has passed ordinance for construction of water mains in District 562.

Berlin, Wis.—Water Commission will lay 16 rods of 4-inch water mains on Church st.

CONTRACTS AWARDED

Anniston, Ala.—Supply water, 20 years, to Anniston Water Supply Co.

Ft. Logan H. Roots, Ark.—Erection of 150,000-gal. steel tank and trestle and raising present 30,000-gal. tank and trestle to R. M. Galbraith, Pine Bluff, $14,997.

Lemont, Ill.—Laying water mains in two streets to T. F. Friedly, $1,811.44; contractor will purchase 400 ft. of pipe from village.

Atlanta, Ga.—Erecting filtration plant to N. Y. Continental Jewell Filtration Co., of New York, N. Y., 10,000,000 gal. daily capacity, $31,000.

Newport, Ky.—Constructing a stand-pipe in CliftonHeights to Des Moines Bridge Co., Des Moines, Ia., $2,400.

Raymond, Minn.—Erecting a tower, tank and lay 2,000 ft. of mains, to Des Moines Bridge Co., Des Moines, Ia.

Atlantic City, N. J.—Pumping Stations, (a) slate and shingles, (b) asbestos, (c) granite: Thompson & Stiles, Bartlett Bldg., Atlantic City, (a) $53,997, (b) $53,747, (c) $52,977; Wilbert Beaumont, 10 S. Tenn. ave., Atlantic City, (a) $52,000, (b) $52,600, (c) $51,210; Edward L. Bader, Bartlett Bldg., Atlantic City, (a) $48,572, (b) $48,200, awarded contract; (c) $47,500. Electric Wiring, etc.: Randolph Young, 16 N. Ohio ave., Atlantic City, $2,392; F. A. Chapman, Hotel Kentucky, Atlantic City, $2,240, awarded contract.—Water Department of Atlantic City, L. Van Gilder, Engineer and Superintendent.

East Rochester, N. Y.—Extending the water system to Ripton and Murphy, $3,560.

Ft. Sill, Okla.—Constructing 500,000-gal. reinforced concrete reservoir to Leyster and Lowes, Dayton, O.

Portland, Ore.—Constructing the 30-in. steel submerged main at Clay st., to Robt. Wakefield, Portland, $58,700.

Norristown, Pa.—Laying 1,600 ft. 24-in. pipe across Schuylkill River for Norristown Water Co., to Capt. John J. Williams Co., Chester.

BIDS RECEIVED

Dayton, Ky.—Water franchise, 20 yrs.: Union Light, Heat & Power Co., only bidder, as follows: For 40,000 gal. or less per annum, $6; 40,000 to 300,000 gal., 15c. per thousand gal.; 600,000 to 800,000 gal., 14c.; 800,000 to 1,000,000 gal., 13c.; 1,000,000 and over, 12c. per thousand gals.

Brooklyn, N. Y.—Furnishing, delivering and laying high-pressure fire service mains and appurtenances in Livingston and Remsen sts., and in Elm and Gallatin places: Hagerty & Drummond, 41 Park Row, N. Y. City, $19,807; Murphy Bros., Brooklyn, $22,637; L. E. Kelly, Brooklyn, $20,061; Newman & Corey, Brooklyn, $20,592; Cranford Co., Brooklyn, $21,387.

Newark, O.—Extensions to municipal water works, according to contract 6: Sand & Gravel Co., East Liverpool, $13,044, and S. J. White & F. C. Webb, Newark, $12,296.

Clarksburg, W. Va.—Furnishing and laying c.i. pipe, valves, etc.: Detail bid of lowest bidder, John I. Dick, Scottsdale, Pa., 1450 tons B. & S. pipe, $24.20 per ton; 35 tons B. & S. specials, $50; 50 gates from 4 to 16-in., $7.25 to $62; 35 hydrants, $25.30; 50 valve boxes, $3.25; laying 36,500 lin. ft. 4 to 16-in. pipe, 23c. to 61c.; 300 cu. yd. earth excav., 35c.; 250 cu. yd. rock excav., 90c.; 200 cu. yd. concrete, $7.50; 1 M ft. sheathing, $15; 1500 sq. yd. resurfacing paving, 45c.; total, $58,834; engineer's estimate, $67,156. Totals of other bidders: W. M. Chisholm & Son, 331 4th ave., Pittsburg, $59,121; Wm. Bateson & Co., Wheeling, W. Va., $61,718; Central Constr. Co., Parkersburg, W. Va., $62,206; Sand & Gravel Co., East Liverpool, O., $62,343; H. C. Brooks Co., Clarksburg, W. Va., $64,929; Thoney Pietro, Morgantown, W. Va., $65,382; Filbert Paving & Constr. Co., 903 Penn Bldg., Philadelphia, Pa., $66,996; Bowman Bros. Co., McKeesport, Pa., $70,686; M. O'Herron & Co., 1st and McKean sts., Pittsburg, Pa., $73,511; Jos. Fuccy, Weston, W. Va., $75,160; The F. C. Welch Co., Clarksburg, W. Va., $75,884, and F. P. Cunningham, Du Bois, Pa., $101,020; mechanical filter plant, detail bid, H. C. Brooks Co., city, lowest bidder: Temporary office building, lump sum, $200; 8500 cu. yd. earth excav., 40c.; 4000 cu yds. rock excav., 90c.; settling and coagulating basins, lump sum, $10,900; clear water basin and filters, lump sum, $39,040; outside piping connections, lump sum, $9,150; boiler house, addition, lump sum, $6,750; 200 cu. yd. additional concrete, $8.50; 4000 lb. additional steel reinforcement, .04 1-2c.; low lift pumps, lump sum, $2,060; high lift pump, lump sum, $3,870; boilers, lump sum, $8,650; distributing reservoir, lump sum, $13,000; total, $102,500; engineer's estimate, $100,000; total, other bidders, Pitt Constr. Co., 821 Fulton Bldg., Pittsburg, Pa., $104,160; The N. Y. Continental Jewell Filtration Co., 15 Broad st., New York, N. Y., $104,895; Fred. T. Ley & Co., 29 B'way, New York, N. Y., $105,350; Filbert Paving & Constr. Co., 903 Penn Bldg., Philadelphia, Pa., $105,837; The Sand & Gravel Co., East Liverpool, O., $108,472; Bowman Bros. Co., McKeesport, Pa., $112,395; Stamper, Ragland & Co., Richmond, Va., $119,120; The Kaps Brehm Co., Cincinnati, O., $129,916; Jas. S. Kene & Sons Co., of Huntington, W. Va., bid a total of $92,299, omitting the pumps and boilers.—Hering & Fuller, 314 Oak Hall Bldg., Engineers.

LIGHTING AND POWER

Birmingham, Ala.—Providence Oil & Gas Co. has been granted franchise by Board of Aldermen.

Montgomery, Ala.—Rich'd Tillia has purchased the plant of Citizens' Light & Power Co., and will make extensive improvements.

Imboden, Ark.—Mrs. Jennie Nash, Jonesboro, has purchased electric light and water plant and will make improvements and operate.

Ola, Ark.—City is considering installation electric light plant; whether it will be municipally owned or operated under franchise granted by city has not as yet been decided.—M. L. Martin, Mayor.

Los Angeles, Cal.—Board Public Works has recommended that $25,000 be appropriated to carry on preliminary engineering work for aqueduct power plants.

San Diego, Cal.—Council has passed resolution to issue $3,500,000 bonds for construction of gas and electric plant, and other improvements.

Danbury, Conn.—Danbury & Bethel Gas & Electric Light Co. is preparing to install steam turbine electric generator; also 2 additional 300-hp. boilers.—C. H. Merritt, President.

Atlanta, Ga.—Geo. E. Murphy, 1724 Candler Bldg., desires generator, 116-candle-power lights.

Valdosta, Ga.—The Ware County Light & Power Co. of Waycross has purchased old light and power plant and will improve.

Calmar, Ia.—Citizens will vote July 7 on granting a franchise for electric light plant to C. Miller & Sons, of Clermont.

Ossian, Ia.—Franchise for the installation of an electric light and power plant has been granted to C. Miller & Sons, of Clermont.

Canton, Kan.—J. S. Wooley, Kansas City, Mo., has been selected engineer in charge of electric light plant improvements.

Whitesburg, Ky.—Jesse L. Comann will shortly establish electric lights.

Centerville, Md.—Robt. V. Morse, of Baltimore, has been selected as Engineer in charge of gas plant to be constructed at cost of $10,000.

Ansley, Neb.—Citizens, at a recent election, voted $12,000 bonds for erecting electric light plant and extending water works.

Wymore, Neb.—Council favors issue of bonds to establish an electric light plant.

Burlington, N. J.—Council has granted 50-year electric light franchise to syndicate which has purchased property of Burlington Light and Power Co. and will erect $100,000 plant.

Salem, N. J.—Council has granted 25-yr. franchise to Salem Electric Co.

Trenton, N. J.—Public Service Electric Co. has been incorporated, capital $15,000,000, to manufacture and distribute electric power. Thos. N. McCarter, Edwin W. Hine and Dudley Farrand, incorporators.

Buffalo, N. Y.—Board of Aldermen has passed resolution asking bids for two steam turbines to be installed at Porter ave. station; c.p. 5000 kw.

Rochester, N. Y.—Rochester Railway and Light Co. will lay 12,000 ft. of gas mains along Little Ride road.

Williamston, N. C.—Bids will be received by Board Town Commissioners for an electric lighting franchise.—C. H. Godwin, Secretary.

Hamilton, O.—Citizens have voted $260,000 bonds for gas, electric light and water extensions and other improvements.

Foraker, Okla.—Citizens have voted $5,000 light bonds.

Reading, Pa.—Metropolitan Electric Light Company, of Reading, will spend several hundred thousand dollars placing wires underground throughout business sections.

Rock Hill, S. C.—Board of Public Works has engaged Engineer Rucker, of Charlotte, to prepare plans, specifications, etc., for municipal lighting plant.

Coleman, Tex.—Citizens have voted $20,000 power bonds.

Fort Worth, Tex.—County Commissioners have granted 25-year franchise and right of way to Fort Worth Gas Co. for the purpose of supplying villages of Polytechnic Heights, Arlington Heights, Handley and intermediate points with natural gas for domestic usage and street illuminating purposes.

Nacogdoches, Tex.—City is considering construction of electric light plant to be operated in connection with water works.

Richmond, Va.—City has $20,000 available for ornamental lights on Broad st.

Cheney, Wash.—Plans have been completed by the Washington Water Power Co. to install lighting system in town of Meadow Lake.

Walla Walla, Wash.—Columbia Power & Light Company is contemplating erection in the immediate future of $50,000 brick sub-station at Sixth and Main sts. Architect Henry Osterman is now engaged in drawing plans.

Windsor, Ont., Can.—Citizens have voted in favor of Niagara Power bylaw authorizing Council to issue $100,000 bonds for installing of transmission line and station for supplying power to city.

CONTRACTS AWARDED

Anniston, Ala.—Lighting city, 10 years, to Anniston Electric and Gas Co.—R. L. Rand, Manager.

San Francisco, Cal.—Gas holder, 5,000,000 cu. ft. for San Francisco Gas & Electric Co., to R. D. Wood & Co., Philadelphia, Pa.

Paullina, Ia.—Constructing electric light and power plant to International Supply Co., Sioux City, $11,500.

Sharpstown, Md.—Lighting with electricity, current to be supplied from Laurel, to Sussex Light & Power Co.

Ft. Andrews, Mass.—Electric light system to Lord Electric Co., New York City.

Fort Snelling, Minn.—Remodeling Electric Light System to W. I. Gray & Co., 704 South Fifth St., Minneapolis, Minn.

Virginia, Minn.—Lighting Chestnut st., to Lawrence Goodspeed Electric Co., $5,499.

Ft. Missoula, Mont.—Construction of electric light system to F. E. Newbury Electric Co., St. Louis, Mo., fixtures for buildings, $4,284; distributing system, $9,988; substation, $900; to Westinghouse Electric & Mfg. Co., Baltimore, Md., switchboard and apparatus, $2,052.

Ft. Terry, N. Y.—Electric light and power plant, to Alfred J. Hixon, Boston, Mass., wiring and fixtures, $8,498; to Sperry Engr. Co., New Haven, Conn., construction of pole line, $12,873; transformers and wattmeters, $2,214; switchboard, $3,855; generators and exciters, $4,895; smokestack, $2,035; construction of power house, $11,925; to Ridgway Dynamo & Engine Co., Ridgway, Pa., engine, $9,100; to John W. Danforth Co., Buffalo, N. Y., boilers, $9,518; feed water heater and fixtures, $1,283; to M. L. Bayard, Philadelphia, Pa., steam and exhaust piping, $9,390.

Ft. Sill, Okla.—Construction and installation of electric light and power plant at Ft. Sill, to Kraushaar Brass Mfg. Co., fixtures for building, $7,780; to McCay Engineering Co., Baltimore, Md., pole line construction, $10,997; to General Electric Co., Oklahoma City, transformers and wattmeters, $2,645; to Ridgway Dynamo & Engine Co., Ridgway, Pa., engines and generators, $13,400; to Urbaner-Atwood Heating Co., St. Louis, Mo., feed water heater, etc., $2,450; steam piping, pumps, etc., $6,500; to Evans-Almiral Co., New York City, traveling crane, $1,754; concrete floors and foundations for mechanical equipment, $2,647; boilers, $16,452; to Westinghouse Electric & Mfg. Co., Baltimore, Md., switchboard, $3,863.

Ft. Greble, R. I.—Installing electric light system to Whitall Electric Co., of Westerly, R. I., $2,800.

Ft. MacKenzie, Wyo.—Remodeling the street lighting system and building transformer substation to F. E. Newberry Electric Co., St. Louis, Mo., $6,308.

FIRE EQUIPMENT

San Mateo, Cal.—Election on bonds for organizing paid department with motor apparatus is being considered.

Willows, Cal.—Board of Trustees is considering need of fire apparatus for newly annexed district.

Edwardsville, Ill.—Plans are being prepared for erection of two fire stations.

Des Moines, Ia.—L. G. Roe, Superintendent of Public Safety, will soon purchase 3,000 ft. of fire hose.

Lansing, Mich.—Purchasing and Property Committee of Fire Board will purchase 1,000 ft. of hose; need of larger auto engines is being considered.

Hanley Falls, Minn.—Village Council has decided to purchase fire hose.

Alton, Mo.—Council Committee on Fire Department will have plans prepared for two new hose houses; purchase of auto fire trucks is being considered.

St. Joseph, Mo.—Chief P. P. Kane has recommended rebuilding of central fire station, erection of two new stations in suburban districts, purchase of two auto combination chemical and hose wagons.

Springfield, Mo.—Chief H. L. McLaughlin has made following recommendations: Erection of four new stations and equipment of same; also purchase of aerial

truck, auto combination hose wagon, 70-gal. auto chemical engine, 100-gal. auto chemical engine, standard automatic repeater.

Long Branch, N. J.—Bids will be received July 18, 7.30 p. m., for furnishing auto hose wagon, cap., 1,000 ft. 2½-in. hose; also auto combination hose and chemical engine, same capacity.—B. C. Newcomb, City Clerk.

Du Bois, Pa.—Borough has purchased site at W. Du Bois ave. and Grant st. for erection of hose house for Friendship Hose Co.

Johnston, Pa.—Bids will be received July 11, 8 p.m., for furnishing quantity of hose, including couplings.—L. M. Keller, Chief.

Lebanon, Pa.—Council is considering ordinance appropriating $10,000 for erection of house for Perseverance Fire Co.

Walnutport, Pa.—Hose Co. No. 2 has purchased site for erection of fire station.

Memphis, Tenn.—Bids will be received by Ennis M. Douglass, City Clerk, July 12, for erection of one single and one double fire-engine house.—John Gaisford, Architect.

Houston, Tex.—National Board of Fire Underwriters has made following recommendations: Purchase of new engines of 700-gal. cap. for companies Nos. 6, 7 and 8; new 75-ft. aerial truck; establishment of new water tower and ladder companies; equipment of all apparatus with rubber tires; providing a hose wagon carrying 1,200 ft. of hose for congested district; that each hose wagon be provided with a plaster hook, siamese coupling, door opener, burst hose jacket and distributing nozzle; to each aerial truck 2 pompier ladders, hose roller, life gun, life net, marine torch, deluge set, cellar pipe and salvage appliances; to the service trucks a door opener, deluge set, life belts, picks, shovels, wall hook and chain, wire cutters, tin roof cutter, hose roller, ladder straps and nozzles; improvement of and making additions to fire alarm system.—R. F. Ollre, Chief.

Pasco, Wash.—City is considering erection of $30,000 combined fire station, city hall and jail.

BRIDGES

Demopolis, Ala.—Jesse B. Hearin, Secretary Business League, is interested in proposed construction of bridge across Warrior River; cost $35,000.

Mobile, Ala.—Board of Public Works has decided to construct concrete viaduct.

Fortuna, Cal.—Plans are being prepared by the County Surveyor for steel or reinforced concrete bridge over Eel River, at Singley's Station.

Hanford, Cal.—County Supervisors are considering erection of 200 ft. bridge across San Jose.

Pasadena, Cal.—Plans have been prepared for erection of bridge over arroyo sec. on W. Colorado st.

Suisun, Cal.—Board of Supervisors has asked for bids for constructing concrete bridge across Suisun Creek, near Thomasson.

Cedartown, Ga.—Board of County Commissioners will ask new bids for erection of three concrete culverts near Rockmart.

Newnan, Ga.—Coweta and Carroll Counties will erect highway bridges across Chattahoochee River at Moore's Ferry; bids asked.—H. C. Glover, Chairman.

Boston, Mass.—The City Engineer's Department has prepared plans for bridge to be constructed over Mystic River.

Grand Rapids, Mich.—Council is considering erection of concrete bridge at Leonard st.

Vandalia, Mo.—County Commissioners are considering erection of bridge over the Cuivre.

Nebraska City, Neb.—County has decided to erect two cement bridges.

Schuyler, Neb.—County Commissioners are considering erection of bridge over Platte River; concrete piers.

Herkimer, N. Y.—Engineer Wilber will prepare plans for concrete bridge across Bellinger Creek, on German st.

Troy, O.—County Commissioners will erect bridges at Water and Bridge sts.

New Brighton, Pa.—County Commissioners will expend several thousand dollars in repairing Fallston Bridge.

Wyoming, Pa.—County Court is considering erection of bridge at this place.

York, Pa.—Plans have been submitted to Highway Committee of Council for bridge over Tyler's run at Jackson st.

Llano, Tex.—County Supervisors are considering erection of four bridges.

Spokane, Wash.—Plans and specifications are being prepared for viaduct over railroad tracks at Front ave. and Division st. Morton Macartney, City Engineer.

Tacoma, Wash.—Council has passed ordinance for construction of wooden bridge over gulch on E. Tacoma ave.

Milwaukee, Wis.—Erection of $7,000 concrete bridge over Kinnickinnic River is being considered.

CONTRACTS AWARDED

Ft. Smith, Ark.—Bridge over the Arkansas River, for substructure, to Kahmann & McMurry, of Kansas City, Mo., about $148,250; superstructure delivered and erected to Arkansas Bridge Co., of Ft. Smith, Ark., about $415,000. Waddell & Harrington, Kansas City, Mo., Engineers.

Cairo, Ga.—Construction of 420-ft. bridge across Ochlochee River to Roanoke Bridge Co., Roanoke, Va.

Madison, Ga.—Erection of 340-ft. bridge across Hard Creek to Roanoke Bridge Co., $3,700.

Greenfield, Mass. — Constructing reinforced concrete arch bridge, 120-ft. span, over Green River, to Dan'l O'Connell's Sons, Holyoke, $18,000.

Toledo, O.—Constructing concrete bridge over Maumee River, to C. H. Fath Sons Co., Cleveland. Ralph Modjeska, Chicago, Ill., Consulting Engineer.

Oklahoma City, Okla. — Constructing bridges at Packingtown, Ecroat Crossing, Spencer and Hurrah over Canadian River, in Oklahoma County, to Kansas City Bridge Co., Kansas City, Mo.

Pittsburg, Pa.—Furnishing cement for bridges, etc., for the County Engineer, for present year, to Universal Portland Cement Co., $1.22 per barrel.

Larne, Pa.—Erecting concrete bridge over Codorus Creek to Nelson & Meredith Co., Chambersburg, $1,545; extra work, $8.25 per cu. yd.

West Chester, Pa.—Constructing stone bridge over White Clay Creek, in London Grove Township, to Dan'l E. O'Connell.

Wenatchee, Wash.—Erecting bridge over Wenatchee River, at Wenatchee Lake, to J. M. Quigg, city, $10,400.

BIDS RECEIVED

San Antonio, Tex.—Building Travis st. bridge, Pennsylvania Bridge Co., Philadelphia, $13,893; Aiken Cement House Co., San Antonio, concrete, $14,517.63; Leversedge Bridge Co., Fort Worth, $16,000; El Paso Bridge Co., El Paso, $16,130; T. H. Allsbury & Co., Houston, $18,750; Webber-Duller Co., Houston, for American Bridge Co., Pittsburg, less 180 sq. yds. of asphalt, $18,945; H. B. Thompson Co., San Antonio, concrete, $19,000; Missouri Valley Bridge Co., Dallas, $21,975; Austin Bros., San Antonio, $25,598.

MISCELLANEOUS

Florence, Ala.—County Commisioners have decided to erect $20,000 jail.

Los Gatos, Cal.—Mayor G. W. Turner is urging erection of city hall.

San Diego, Cal.—Engineer John T. Flynn has prepared plans for sea wall 4 1-5 miles in length, across north end of harbor; cost, $1,000,000.

Willows, Cal.—Citizens will vote early in summer on $40,000 bonds for needed improvements, including section of city hall, extension of sewer system and purchase of fire apparatus.

New Haven, Conn.—Special Committee, John Elliott, chairman, has recommended continuation of present system of garbage collection, with number of improvements.

Reedsville, Ga.—Citizens will vote on $10,000 improvement bonds.

Huntington, Ind.—Plans have been completed for erection of jail.

Vincennes, Ind.—Council is considering $6,000 appropriation for erection of police patrol station and city court room.

Boston, Mass.—Bids will be received July 11 for $3,803,000 municipal improvement bonds.

Boston, Mass.—Board of Trustees of City Hospital has asked Council for $50,000 for general improvements.

Boston, Mass.—Finance Committee is considering $100,000 loan for all year gymnasium and bath house in Ward 8.

Bemidji, Minn.—Citizens have voted $15,000 bonds to erect jail.

Butte, Mont.—Mayor Nevin has secured plans for garbage incinerator.

Atlantic City, N. J.—Mayor Stoy has signed the ordinance providing for new Marine Park, which takes in the big Vogler tract at the Inlet.

Syracuse, N. Y.—Commissioner of Public Safety H. E. Hessler will soon select plans for erection of $30,000 pavilion at City Hospital.

Mangum, Okla.—Citizens have voted bonds for erection of city hall and for fire station.

Harrisburg, Pa.—Special Ways and Means Committee, B. Frank Snavely, chairman, will take up matter of disposing of garbage and ashes of the Thirteenth Ward and other new sections of city not included in present garbage contract.

Laurytown, Pa.—Middle Coal Field Poor District has decided to build insane asylum; Luzerne Engineering Co., Hazleton, will prepare plans.

York, Pa.—Council will consider ordinance providing for installation of street signboards at different corners of city.

Warrenton, Va.—City will soon receive bids on revised plans for city hall.—Milburn, Heister & Co., Home Life Bldg., Washington, D. C., Architects.

Pasco, Wash.—City is considering erection of $30,000 combined city hall, fire station and jail; $10,000 Carnegie library is proposed.

Tacoma, Wash.—Municipal Commission is planning to ask voters to consider bond issue in near future to cover cost of acquiring land on city waterway for municipal docks and to build dock buildings.—A. V. Fawcett, Mayor.

Superior, Wis.—Police Chief McKinnon will purchase auto patrol.

CONTRACTS AWARDED

South Bend, Ind.—Motor patrol to Studebaker Bros. Manufacturing Co., $4,350.

Hackensack, N. J.—Erection of county jail on Court sq.; lowest bidder, John T. Brady Construction Co., $246,840; other bidders: Luke A. Burke & Sons Co., $253,609.27, Sept. 9, 1911.; Hebben Construction Co., $269,439, July 1, 1911; Theodore Starrett & Co., $271,507, Sept. 11, 1911; Thomas J. Reilly, $278,210, Aug. 1, 1911, and Murphy Construction Co., $291,138.36.

Brooklyn, N. Y.—Playground supplies, Prospect Park, to Schoverling, Daly & Gales, 302 Broadway, $1,609.50.

Elmira, N. Y.—All bids received June 13 for constructing City Hall have been rejected.—City Clerk, Otis H. Gardner.

Newburgh, N. Y.—Repairing court house, to Thos. M. Fouts, $65,900.

Toledo, O.—Disposal of garbage, ten years, to F. C. Alba, Cleveland; will erect $125,000 plant.

Moselem, Pa.—Repairing county bridge, to H. E. Ahrens & Co., Reading, $1,535.

BIDS RECEIVED

Oakland, Cal.—Street sweeping, Sanitary Street Sweeping Co., $11.50 per mile; J. Martin, $8.20 per mile.

Elizabeth, N. J.—Scavenger work, Wade Bros., lowest bidders, $34,000; other bidders: Thomas Viscount, $42,000; Louis Rusciano, $42,000, and Nicola La Corte, the present scavenger, $53,597.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Selma, Ala.—Paving of Broad st. with asphalt is being considered.

New Britain, Conn.—Extension of permanent pavement, cost about $5,000, is being considered.

East St. Louis, Ill.—City has sold $104,000 bonds for improvement of Illinois ave. to Illinois State Trust Co. Bank.

Indianapolis, Ind.—Plans have been ordered for paving 29th st. with bituminous pavement; Board of Works has adopted resolutions for paving five streets.

Ft. Wayne, Ind.—Board of Public Works will soon receive bids for paving three streets with asphalt and gutters with brick.

South Bend, Ind.—Board of Public Works is considering construction of walks on four streets.

Holyoke, Mass.—Board of Public Works is considering macadamizing strip of road between old Northampton line and Kenilworth castle.

St. Paul, Minn.—Board of Public Works has recommended macadamizing of Dale st.

Winona, Minn.—Council has ordered plans and specifications for paving Second and Franklin sts.—Paul A. Jasmer, City Recorder.

Bayonne, N. J.—Council has passed ordinance providing for issue of $234,000 bonds for repaving Broadway.

Newark, N. J.—Board of Works has decided to pave Market st. with asphalt.

New York, N. Y.—Board of Estimate has approved proposition to lengthen 7th ave.; cost $10,000,000.

Akron, O.—Cost of paving portion of road from Cuyahoga Falls to Hudson line has been estimated at $105,956.72 by County Surveyor Gehres.

Hamilton, O.—Council will issue $12,124.72 bonds to pay cost of improving Fifth st.—H. B. Grevey, Clerk.

Oxford, O.—Village authorities have asked for bids for steam roller and grader.

Lockhart, Tex.—County Commissioners are advertising for bids for construction of 8 miles of macadamized roads.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Minnesota	Duluth	July 8, 10 a.m.	Improving 2 streets	R. Murcheson, Clk. Bd. Pub. Wks.
Indiana	Indianapolis	July 8, 10 a.m.	Improving portions various streets; 2 contracts	C. A. Schroeder, Pres. Bd. Pub. Wks.
Oklahoma	Geary	July 8, 5 p.m.	Constructing sidewalks	H. G. Bailey, City Clerk.
Nebraska	Lincoln	July 9, 2 p.m.	Excavating and filling County road, 5,400 cu. yds.	H. E. Wells, County Clerk.
Michigan	Lansing	July 11, 4 p.m.	Asph. conc. 6,354 sq. yds, cement curb and gutter, 3,175 ft.	H. A. Sparks, City Engineer
Iowa	Marshalltown	July 11, 8 p.m.	Paving certain streets and alleys; brick block paving, 12,700 sq. yds.; conc. curb, 4,800 ft.	City Clerk.
Michigan	Crystal Falls	July 11, 8 p.m.	Paving with tar macadam portion of Superior ave.	Wm. J. Gribble, City Clerk.
Minnesota	Chaska	July 11, 1 p.m.	Grading, curbing, ditching State Road No. 8, Dahlgren	J. B. Connolly, County Auditor.
North Dakota	Fullerton	July 11	Bldg. 2 good road grades, between Sections 3 and 10	F. R. Applequist, Clk. Kent Twp
Indiana	Richmond	July 11	Improving 3 miles of road; cost $60,000	Wayne County Commissioners.
Illinois	North Chicago	July 12, 10 a.m.	Bldg. roads and walks at Naval Training Station	Commandant, Training Station.
Pennsylvania	Harrisburg	July 12, 2 p.m.	Paving, any suitable material, 5,717 lin. ft. Tuscarora Creek road, 16 ft. wide, Braintrim twp., Wyoming Co.	Joe W. Hunter, State Hwy. Comr.
Washington	Olympia	July 13, 2 p.m.	Grading and draining State aid road, 47, Whitman Co.	H. L. Bowlby, Sec'y St. Hwy. Bd.
Ohio	Columbus	July 14, noon	Grading and graveling portion of Gay road	F. M. Sayre, County Auditor.
Texas	El Paso	July 14, 10 a.m.	Paving N. Campbell street	City Engineer.
Ohio	Toledo	July 15, 10 a.m.	Repairing 2 macadam roads	C. J. Sanzenbacher, County Auditor.
Ohio	Oberlin	July 16, noon	Paving Morgan st. from Main to Professor st.	H. T. Marsh, Village Clerk.
Michigan	Dowagiac	July 18, noon	Tarvia macadam paving, 7,000 sq. yds.; concrete curb and gutter, 4,300 ft.	Wm. T. Easton, City Clerk.
Iowa	Oskaloosa	July 18, 7:30 p.m.	Grading, curbing, paving, etc., 2 streets	C. E. Munroe, City Clerk.
North Dakota	Bismarck	July 18	Bldg. county highway	I. W. Healy, County Auditor.
Ohio	St. Bernard	July 19	Bldg. 4-ft. artificial stone sidewalks in Albert street	Geo. Schroeder, Village Clerk.
Ohio	Berlin Center	July 20, noon	Grading east and west Center road, west from town	J. L. Wilsdorf, Twp. Clerk.
Ohio	Upper Sandusky	July 20, noon	Improving Johnson st. from Sandusky to Chief st.	A. H. Stutts, Village Clerk.
Virginia	Roanoke	July 22, noon	Bldg. granolithic sidewalks in sundry streets	W. L. Crafts, City Clerk.
Texas	Amarillo	July 25, 3 p.m.	Paving 80,000 sq. yds.; four materials	S. J. Brown, City Secretary.
Ohio	Cincinnati	July 26, noon	Bldg. concrete driveways, walks, etc., New General Hospital	E. L. Kennedy, Clk. Hospital Comrs.
Kansas	Ft. Scott	Aug. 5	Bldg. 22 miles of Kansas City-Ft. Scott road	City Commissioners.
SEWERAGE				
Minnesota	Duluth	July 8, 10 a.m.	Bldg. sanitary sewer in Seventh alley	O. G. Olson, Pres. Bd. Pub. Wks.
Wisconsin	Kaukauna	July 11, 4 p.m.	Bldg. sewers in various streets	C. E. Haas, Chm. Sewer Bd.
Michigan	Pentwater	July 11, 6 p.m.	Bldg. a sewer	W. E. Lewis, Village Clerk.
Iowa	Ft. Dodge	July 11, 5 p.m.	Bldg. storm water sewers	W. L. Tang, City Clerk.
Oklahoma	Muskogee	July 11, 5 p.m.	Bldg. outlets and appurtenances to storm sewers	Chas. Wheeler, Jr., City Clerk.
New York	Ft. Slocum	July 12	Constructing drains at Post	Constr. Q.M., U. S. Army.
New York	Brooklyn	July 13, 11 a.m.	Repair sewer in Navy st., between Nassau and Prospect	A. E. Steers, Borough President.
Indiana	Ft. Wayne	July 14, 7:30 p.m.	Bldg. sewers in several streets and alleys	F. T. Benoy, Clk. Bd. Pub. Wks.
Indiana	Evansville	July 16, 10 a.m.	Bldg. sewers in three streets	S. A. Barthlume, Clk. Bd. Pub. Wks.
Ohio	Lakewood	July 18, noon	Bldg. sewers in Doland ave.	Wm. H. Cook, Village Clerk.
Ohio	St. Bernard	July 19, noon	Bldg. storm water sewer in ravine east of Carthage pike	Geo. Schroeder, Village Clerk.
Texas	Amarillo	July 20	Bldg. sewer extension	J. H. Patton, Mayor.
Massachusetts	Malden	July 22, 2:30 p.m.	Bldg. Sec. 66, exten. No. Metropolitan sewer in Broadway	Met. Water & Sewer Bd., Boston.
Virginia	Roanoke	July 26, noon	Bldg. sewers in a number of streets	W. L. Crafts, City Clerk.
Flordia	St. Petersburg	Aug. 14	Furn. and lay or lay only 1,800 ft. 16-in. c.-i. flange outlet sewer pipe in Tampa Bay	M. W. Spencer, City Engineer.
WATER SUPPLY				
Iowa	Leon	July 12, 7:30 p.m.	Drilling an artesian well	S. G. Mitchell, City Clerk.
Indiana	South Bend	July 13, 10 a.m.	Water connections on Diamond ave., from Michigan to La Port.	A. P. Perley, Clk., Dept. Pub. Wks.
Iowa	Monticello	July 15, 6 p.m.	Furn. f.o.b. city 4 32 ft. 4-in. c.-i. mains, valves, etc.	C. L. Van Meter, Chm. Com.
Ohio	Lakewood	July 18, noon	Bldg. water main in Doland ave.; Wm. M. Evers Eng. Co.	B. M. Cook, Village Clerk.
Wisconsin	Wausau	July 27	Driving 10 deep wells, 2 batteries of 2 boilers each; boiler house and coal storage	B. C. Gowen, City Engineer.
BRIDGES				
New York	Binghamton	July 12, 11 a.m.	Bldg. bridge over Chenango river at Chenango bridge; also for concrete arch bridge at Fenton	County Superintendent of Highways.
Pennsylvania	Harrisburg	July 12, 2 p. m.	Bldg $15,000 sub. and superstructure of 5-span concrete arch bridge with 20-ft. roadway over creek, Hummelstown	S. B. Rambo, Supt. Pub. Bldgs&Grds.
New Jersey	Elizabeth	July 13, 2:30 p.m.	Bldg. bridges and culverts on Two Bridges—Rahway road	F. J. Hubbard, County Engineer.
Ohio	Tiffin	July 16, 1:30 p.m.	Bldg. new concrete piers under Heck bridge, Seneca twp.	John H. Lennartz, County Auditor.
Missouri	Kansas City	July 18	Bldg. 20-ft. span bridge on Blue Springs road	R. T. Proctor, County Engineer.
Iowa	Forest City	July 19, 1 p.m.	Bldg. concrete bridge, two 50-ft. arches, 15 ft. clear roadway, one 5-ft. sidewalk	L. J. Nelson, County Auditor.
Ohio	Barberton	July 22, 11 a.m.	Bldg. bridge over Wolf creek ditch, exten. No. 4th st.	C. L. Wirth, County Clerk.
Texas	Dallas	Aug. 1	Bldg. rein. concrete arch viaduct, 4,870 ft. long between abutments, approaches 500 ft. long	G. L. Fearn, County Auditor.
LIGHTING AND POWER				
Ohio	Bellefontaine	July 8, noon	Furn. meters and transformers for light plant to Dec. 31	Paul O. Batch, Clk. Dir. Pub. Serv.
Minnesota	Minneapolis	July 29, 7:30 p.m.	Furn. electricity to operate 20,000,000-gal. cent. pump engine	H. N. Knott, City Clerk.
MISCELLANEOUS				
Minnesota	Minneapolis	July 8, 7:30 p.m.	Furn. 16 garbage boxes, according to plans	Henry N. Knott, City Clerk.
Indiana	Indianapolis	July 13, 2 p.m.	Furn. auto chemical fire truck; also patrol wagon	Wm. E. Davis, Pres. Bd. Pub. Safety

McKinney, Tex.—Precinct has defeated proposed road bond issue.

Everett, Wash.—City Engineer Horner will prepare plans for improvement of Pacific ave. and grading of Walnut st.

Huntington, W. Va.—Paving of 26th st. is being urged.

CONTRACTS AWARDED

Riverside, Cal.—Paving Bridge st., to Shull, Tucker & Co., $6,074.

New Haven, Conn.—Paving Commerce st. with granitoid, to Rudolf S. Blome Company, of Chicago, $7,010; James E. Gaffney, of New York, $7,582.50; Connecticut Hassam Pavement Co., with Hassam, $5,476.56; Ellsworth ave., Derby, with crushed stone, concrete gutters and crosswalks, to F. Brazos, lowest bidder, $10,035. C. W. Blakeslee & Sons bid $10,263. Winthrop ave. with crushed stone, concrete gutters and crosswalks, to C. W. Blakeslee & Sons, lowest bidders, $7,463.50; Frank Brazos, $7,810.

Bedford, Ind.—Paving, bids opened June 7, to Ewing Shields, Seymour, $22,500.

Lawrence, Mass.—Furnishing city edge stones to Contractor O'Brien, 58c. per ft.

Camden, N. J.—Paving number of streets to Barber Asphalt Co., $1.69 per sq. yd.; paving Spruce st. to B. T. Sweeten & Son., $1.73 per sq. yd.

New York, N. Y.—Repairing sheet asphalt block roadway pavements in Boro. of Manhattan, to Barber Asphalt Paving Co., 30 Church st., $6,986.

Wadesboro, N. C.—Macadam paving and constructing granolithic sidewalks to E. P. Lindsay, Portsmouth, Va., $30,000.

Athens, O.—Grading and paving with brick 1.52 miles of road in Dover Township to W. S. Bower, city, $13,197 for Athens Block with sandstone curb.

Spokane, Wash.—State road No. 2, Stevens County, to Noble & Co., city, $10,000; distance 7 m.

Tacoma, Wash.—Paving North E st., to Contractor Warter, $2,245.

Lethbridge, Alta., Can.—Grading 130,000 cu. yds. to H. Margnardt, 30c. per yard; 1,000 ft. haul, and 33c. for 1,500 ft. haul.

SEWERAGE

Phœnix, Ariz.—City will soon ask bids on $325,000 sewer bonds; bids on construction will be asked at same time.—F. H. Olmstead, Los Angeles, Engineer.

Stamford, Conn.—City received no bids for $35,000 sewer bonds.

Clinton, Ia.—Council is considering construction of sewers in Districts A, B, C, D, District No. 4, also system in Ward 4.

Roselle, N. J.—Borough Council is considering sewers for southeastern section; Borough Engineer J. L. Bauer will soon complete plans for proposed Lorraine sewer which will pass through Linden Township.

Dallas, Tex.—Mayor S. J. Hay has recommended extension of sanitary sewerage.

Moose Jaw, Sask., Can.—Ratepayers will vote July 15th on $412,000 expenditure for sewage disposal plant and other improvements.

Stewart, B. C., Can.—Government has granted $20,000 towards installation of sewerage system; $10,000 will be subscribed by townsite company.

CONTRACTS AWARDED

South Bend, Ind.—Constructing Diamond ave. and East Wayne ave. sewers to Staples and Ackerman, $1,170.55.

Two Harbors, Minn.—Lateral sewer, First Ave., to J. D. O'Connor.

Schenectady, N. Y.—Laying sanitary sewers in four streets and surface water sewers in portion of South Center st., to John Allen.

Erie, Pa.—Sewer work, to Jos. McCormick & Bro., Summit st., 80c. per ft.; Crommel ave., 70c. per ft.

Winnipeg, Man., Can.—Supply of sewer pipe and junctions to W. F. Lee, Winnipeg, $20,120.25; supply of from 25,000 to 30,000 barrels of cement to same 75.45 cts. per 100 lbs., including sacks.

WATER SUPPLY

Escondido, Cal.—Mutual Water Co. will purchase machinery for construction of tunnel at the head works; cost $12,000.—L. Hops, Jr., Constructing Engineer.

Chipley, Fla.—Citizens have voted bonds for water works improvements.

Gordon, Ga.—Walter M. Lee, secretary Citizens Committee, desires prices on pumps.

St. Paul, Minn.—City Engineer L. W. Rundlett has been asked by Water Board to submit plans and estimates for making adequate present water distributing system.

Long Branch, N. J.—Ocean Township Water Co. has been granted franchise.—W. H. King, Township Clerk.

Lestershire, N. Y.—Bids will be received July 11, 8 p. m., for $5,300 water works bonds.—J. M. Kennedy, President Village Board.

New York, N. Y.—Board of Estimate has passed favorably on proposition of Board of Water Supply to bring Catskill water through Manhattan in deep pressure tunnel and over to Brooklyn and thence to Queens and Richmond; cost is estimated at $25,000,000; Board also appropriated $1,510,000 for Department of Water Supply for extension of high pressure fire service on east side, establishment of testing bureaus for water meters, and construction of connections between Catskill water system and present city supply.

Port Clinton, O.—J. A. Singler, Corporation Clerk, states city proposes to construct filtration plant to cost between $15,000 and $18,000; plans by C. E. De Witt, City Engineer.

Quanah, Tex.—Bids will soon be asked for installation of water works; Fountain & Shaw, Houston, Engineers.

Belleville, Ont., Can.—Council has decided to ask for tenders for both turbine and triplex power pumps, etc.

North Toronto, Ont., Can.—Engineer James will at once construct large well at northeast of the pumping station, and install sterilizing plant.

Stettler, Alta., Can.—John Galt Engineering Company has been selected to take charge of installation of water works system.

CONTRACT AWARDED

Idaho Falls, Ida.—Abstract of bids for constructing hydro-electric plant and pumping station received June 24, Chatfield & Cutler Construction Co., awarded contract.—L. C. Kelsey, Dooly Bldg., Salt Lake City, Utah, Engineer. (a) Chatfield & Cutler Construction Co.; (b) Capitol Electric Co. Constructing dams, power house, regulating gates, etc. Power house and station above main floor: (a) $5,314; (b) $3,900. Power house and station below main floor, concrete, 450 cu. yds.; (a) $8; (b) $9. 14,000 lbs. reinforcement: (a) 7 cts.; (b) 5 cts. Excavating well, 100 cu. yds.: (a) $6; (b) $5.50. Trash racks: (a) $350; (b) $300. Sluice gates: (a) $200; (b) $125. Excavation, earth, 500 cu. yds.: (a) 65 cts.; (b) 60 cts. Gravel and boulders, 500 cu. yds.: (a) 90 cts.; (b) $1. Solid rock, 4,600 cu. yds.: (a) $3; (b) $3.75. Excavating and backfilling, earth, 50 cu. yds.: (a) 75 cts.; (b) $1. Gravel and boulders, 50 cu. yds.: (a) $1; (b) $1.50. Solid rock, 100 cu. yds.: (a) $6; (b) $4.50. Constructing dams, concrete, 2,900 cu. yds.: (a) $5.80; (b) $10.85. Loose rock, 4.500 cu. yds.: (a) $3; (b) $2 25: Gravel and earth, 500 cu. yds.: (a) 90c.; (b) $1.10. Regulating gates: (a) $2 800; (b) $3,500. Flashboards and walk on dam, 90 lin. ft.: (a) $11.50; (b) $2. Ice fender. Rip rap, 100 cu. yds.: (a) $3; (b) $2.75. Furnishing and laying C. I. pipe, 16-in., 400 lin. ft.: (a) $4.25; (b) $4. Total: (a) $63,561.50; (b) $75,995.

Idaho Falls, Ida.—Abstract of bids for furnishing and installing machinery for hydro-electric plant and pumping station; Minneapolis Steel and Machinery Co. awarded contract. Two 250-K.W. General Electric Generators; Four 250 Trump Turbines; two 700 Gallon Turbine pumps, with Trump turbines, switchboard, exciter and turbine, crane, $28.288. Utah Electric Supply Co., $27,788. Capitol Electric Co., four bids, $28,288, $30,546, $38,199 and $39,677, and C. C. Moore & Co., $42,000.—L. C. Kelsey, Dooly Bldg., Salt Lake City, Utah, Engineer.

LIGHTING AND POWER

Roseville, Cal.—Citizens have voted to establish municipal lighting plant.

Burlington, Ia.—Proposition to erect ornamental light standards, each standard to support two lights, has been made by Burlington Gas Light Co. to merchants of the city through Commercial Exchange.

Wernersville, Pa.—State Hospital for Insane will expend $15,000 to enlarge electric light plant.

Taylor, Tex.—Council has granted R. E. Schurtz of Alamagordo, N. M., and associates, a thirty-year franchise to construct and operate gas plant.

Edmonton, Alta., Can.—Citizens have passed bylaws to grant franchise for radial railway and franchise to Pintsch gas plant.

Stettler, Alta., Can.—City will install electric light plant; John Galt Engineering Company will have charge.

CONTRACT AWARDED

Ft. Caswell, N. C.—Installation of an electric power and lighting system, to S. J. Watson, Jr., Hampton, Va., wiring and fixtures, $2,328; to Westingnouse Electric & Mfg. Co., Baltimore, Md., switchboard, $2,356; generators, $2,685; to A. D. Granger, New York City, distributing system, $5,263; engines and piping, $3,843; to McCay Eng. Co., Baltimore, Md., transformers, $400.

FIRE EQUIPMENT

Indianapolis, Ind.—Bids will be received July 13, 2 p. m., for one auto chemical fire truck.—W. E. Davis, President, Board of Safety.

Omaha, Neb.—Bids will be received July 19, 2 p. m., for one motor-driven hose and chemical wagon, one 5-passenger auto for Chief and one city service horse-drawn hook and ladder truck.—D. B. Butler, City Clerk.

Trenton, N. J.—Architect Klemann has submitted plans for erection of extension to rear of headquarters building on Perry st.

Harrisburg, Pa.—Council has passed ordinance authorizing purchase of 2,000 ft. of hose.

BRIDGES

Leavenworth, N. J.—City and County Commissioners are considering erection of $2,000 concrete bridge at Linit st. and Second ave.

Dayton, O.—County has sold $15,000 county bridge improvement bonds.

Whitemarsh, Pa.—Bridge will be erected across Wissahickon.

London, Ont. Can.—Tenders have been asked for three reinforced concrete bridges on boundary line between Counties of Middlesex and Lambton.

New Westminster, B. C., Can.—Ratepayers will vote July 14 on $30,000 bridge debentures.—W. A. Duncan, City Clerk.

MISCELLANEOUS

Hartford, Conn.—Mayor Smith will appoint new Building Commissioner for proposed municipal building.

Stamford, Conn.—City received no bids for $30,000 improvement bonds.

Lowell, Mass.—Superintendent of Streets Putnam has asked for 30-h.p. demi-tonneau automobile.

New York, N. Y.—Plans for establishment of playgrounds, wading and swimming pools and other conveniences for recreation of women and children in Central Park have been adopted by Board of Estimate; cost $300,000.

Erie, Pa.—Chas. Carroll Brown, Indianapolis, has been selected as Engineer for solution of garbage collection and disposal problem.

Tacoma, Wash.—Municipal Commission has offered prize to local architect who shall submit best design, both from artistic and utility standpoints, for proposed city dock.

CONTRACT AWARDED

Altoona, Pa.—Remodeling city hall, to J. C. Ivory, $1,848.16, not including wiring or electrical fixtures.

HELP WANTED

WANTED—Manager for paving block plant in East. Must be thoroughly experienced in burning, manufacturing and all details of the production of paving block. Give references and former employers. Address 26A, care Municipal Journal and Engineer.

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No. 3 size standard. A bargain for city or village. Has been thoroughly tested out to entire satisfaction; guaranteed; can also be used in pumping out cesspools, etc. For full particulars and photo, address

BOX 95,
MIDDLESBORO, KY.

(25-26)

PROPOSALS

CAST IRON PIPE, HYDRANTS, GATES

Indianola, Ia.

Proposals will be received by City Clerk J. H. Clark at his office in Indianola, Ia., up to 7 o'clock p. m., July 7, 1910, at which time they will be opened and publicly disposed of. For the furnishing and placing according to the plans now on file with the clerk and engineer at their offices, of approximately 10,000 feet of (4") four-inch standard cast iron pipe, 15 Eddy hydrants and 17 Eddy gates.

Extra copies of plans may be had for $5 each by applying to the engineer.

A. H. McGILLILAND.

(26-1)

PUMPING ENGINE AND INTAKE PIPE

Wyandotte, Mich.

Sealed bids will be received by the Board of Public Works, Wyandotte, Mich., up to 7.30 p. m., July 13, 1910, for a pumping engine and intake pipe, as per specification on file in sec'y office.

The Board reserves the right to reject any or all bids.

JOHN L. SULLIVAN, Sec'y.

PAVEMENT CONSTRUCTION

Amarillo, Tex.

Sealed bids will be received at the office of the undersigned until 3 o'clock p. m. July 25, 1910, for the construction of approximately 80,000 square yards of pavement. Each bidder shall bid separately on: (a) Bitulithic paving. (b) Vitrified brick paving. (c) Sheet asphalt. (d) Rock asphalt. Each bid must be accompanied by a certified check for $1,000 payable to the City Treasurer of Amarillo, Tex. The city reserves the right to reject any and all bids. Plans and specifications on file at office of the City Secretary, Amarillo, Tex., and E. L. Dalton, Engineer, Dallas, Tex.,

SAM. J. BROWN, City Secretary.

Extra copies of the specifications to be sent out of town for personal use of bidders may be secured from the Engineer upon remittance of $5.

SANITARY SEWERS

Amarillo, Tex.

Sealed proposals will be received by the City Secretary of Amarillo, Tex., until 10 o'clock a. m., July 20, 1910, for furnishing materials and labor for construction of sanitary sewers. The work will consist of aproximately 11,100 feet 15-inch, 8,155, 12-inch and 30,835 feet 6-inch diameter sewer pipe. Each bid must be accompanied by certified check for $500, payable to J. H. Patton, Mayor. The city reserves the right to reject any or all bids. Plans and specifications on file at office of City Secretary and E. Dalton, Engineer, Dallas, Tex.

STREET IMPROVEMENT

Waukesha, Wis.

Sealed proposals will be received at the office of the Board of Public Works until Monday, July 11, 1910, for furnishing all material and labor to pave with a tar macadam pavement and a combination concrete curb and gutter White Rock Ave., East Park Ave., Cook St., and Center St. and Lincoln Ave., with a brick pavement on a concrete base between the tracks of a double track railway and with tar macadam between tracks and gutter.

Engineer's estimate as follows:

15,450 cu. yds. excavation, 31,139 sq. yds. macadam, 21,435 lin. ft. curb and gutter, 5,770 sq. yds. brick paving together with the necessary drains, foot bridges and catch basins.

Plans and specifications on file in the office of the Board of Public Works. Blank forms of Proposal and Contract will be furnished upon application.

MORGAN R. BUTLER, City Engineer.